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A Periodical of School Administration

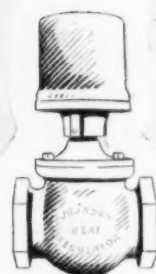
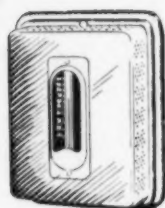
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THE AMERICAN School Board Journal

JANUARY
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This Publication Adopts New Format

Beginning with this, the January, 1937, number, THE AMERICAN SCHOOL BOARD JOURNAL appears in a new format and makeup intended to make the pages more convenient and more easily read.

When the Journal was established in 1891, the size and style adopted were well in advance of the best typography of the day and represented rather new and untried ideas in the arrangement of reading as well as advertising content.

With the passing of time, the class and professional magazines of the country have tended toward smaller pages; readers, librarians, and advertisers have joined in their plea for the smaller page which approaches some degree of uniformity in general style and makeup. Readers and librarians have sought compactness and a reduction in the weight of periodicals, while the advertisers have tried to economize in the preparation of plates and typesetting for advertisements intended for a number of publications.

From the reader's point of view the new format insures convenience in handling and filing single copies, in storing bound volumes, and in preserving clipped pages in scrapbooks or vertical files. The importance of the reference value of the JOURNAL is repeatedly brought home to the editor by school officials who desire quick access to the administrative data published from month to month.

The total quantity of the reading matter will not be reduced. The smaller page will mean a greater number of pages. The same typographical excellence in point of type dress and illustrations which has characterized the JOURNAL in the past will be found in the future. Our readers will be pleased with the new format and will give it the welcome that we believe it merits.

The Editors

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Editorial Material—Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited, and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer, not necessarily for publication, but as evidence of good faith.

The contents of this issue are listed in the Education Index.

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THE AMERICAN School Board Journal

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Planning the School Building to Satisfy Anticipated Changes in the School Program

Dean H. L. Smith, School of Education, Indiana University

The adequate housing of the rapidly changing program of our nation's largest and most important undertaking is indeed a stupendous task. We are just awakening to a realization of the fact that its successful accomplishment is dependent upon the serious consideration and co-operative effort of the best educational and architectural leadership.

Since 1900, perhaps the outstanding modification in the school-building structure has been the provision of many special rooms as a result of the expansion of the curriculum and the addition of many more subjects. More recent curriculum revision has resulted in making the content of the various fields more functional. The provision of more functional content has made possible increased emphasis upon natural expression activities. These educational trends have necessitated adjustments in the building facilities.

Science, through the development of new visual and auditory aids to instruction, has brought the world into the classroom and has made possible the broadening of the pupil's experience to an extent heretofore impossible. The use of the talking picture, the radio, and public-address equipment have made necessary certain modifications in the building structure. As a result of the use of the auditorium for the showing of motion pictures, provision has had to be made for a fireproof projection booth, facilities for darkening the room, a projection screen, proper outlets for the audition equipment, and the treatment of the room to eliminate disturbances and to secure desirable acoustic qualities.

Advent of the Radio

In recognition of the growing importance of the radio as an instrument of education, more and more schools are making installations of radio equipment either through the use of the public-address system as a distributor of programs or through the

provision of a radio for every room. With the continued improvement of an increased emphasis upon education by radio we may expect the provision of additional housing facilities to become absolutely necessary.

Recent emphasis upon the museum and various types of exhibits has already resulted in building modifications to provide increased bulletin-board space in the classroom, exhibit space in corridors, foyers, and alcoves, and in some cases special rooms for museums.

The rapid rise of the idea of learning by doing with emphasis upon the activity program with its many variations has been an outstanding development in certain elementary programs during the past two or three decades. While it has been necessary in most instances to use building facilities already provided for the traditional type of teaching, there has been a decided tendency to replace the stationary seats with tables and chairs, and to provide additional bulletin-board, exhibit, and storage space.

If this emphasis upon the activities program continues to grow, it may be reflected in the future in the adaptation of the building through the provision of larger classrooms equipped with hot and cold water; increased storage facilities for the materials and equipment of individual pupils and for the supplies and equipment used by the class; increased bulletin-board space with a minimum of blackboards; improved library facilities, both central and classroom; small activity auditoriums with adjoining workrooms; special rooms for music, science, and household arts; radio and motion-picture equipment; facilities for the exhibition of classroom work; and easy access to the outdoors with provision of playground equipment adapted to the needs of the children. Increased emphasis upon health and physical development, citizenship, education for leisure, and social growth of pupils have likewise created a need for special rooms for many types of group activities.

Recognizing Health Considerations

During the past three decades many contributions have been made to our knowledge of health, and much effort has been put forth to improve the physical welfare of the school child. The trend is definitely toward the careful examination and follow-up of each child with a cumulative record of his health history. Increased attention to the prevention of diseases and the development of serious physical defects through corrective measures has also characterized our health- and physical-education program.

Some schools are already providing, and schools of the future will find it necessary to provide, medical suites with waiting rooms, examination rooms, storage facilities for records, dental clinics, and toilets and washrooms. Corrective gymnasium rooms will be necessary for the correction of physical defects through the use of corrective gymnastics. The dissemination of health knowledge and the formulation of proper health habits is being accomplished through recently developed courses in health education, the use of the cafeteria, and an expanded physical-activity program. The full realization of the benefits of an expanded physical-activity program will come only through the provision of corrective gymnasium rooms, specialized game rooms, swimming pools, enlarged playgrounds for various outdoor activities, and the provision of adequate shower and locker facilities.

More and more attention is being given to the necessity of providing special facilities for physical defectives. This is resulting in an increased demand for open-air classrooms, sun decks, sight-saving classrooms, rhythm floors for the instruction of the deaf, and the use of ramps instead of stairs.

The rapid increase in the number of cases of defective vision in recent years has

led to experimentation to eliminate the defects caused by inadequate and defective natural and artificial lighting in the classroom. While recently developed standards of fenestration have helped to improve schoolroom lighting, more recent research has pointed out the necessity of supplementing natural with artificial light. The construction of school buildings may be revolutionized as a result of future developments in this field.

Temperature and Humidity Control

The literature in the field of schoolhouse heating and ventilation is voluminous and conflicting. There seems to be general agreement, however, that the three most important factors in heating and ventilation are control of the temperature, the humidity, and the movement of the air. Present trends indicate the approach of an era in which air-conditioning is to receive increased emphasis. Construction of buildings must keep pace with these new developments.

With the coming of compulsory education and resulting increases in enrollment, the responsibility of the school for the safety of the pupil has correspondingly increased. School buildings have reflected the acceptance of this responsibility through the appearance of fireproof corridors and stairwells, properly constructed stairs, an adequate number and type of exits properly located, and proper isolation of the heating plant. More recent modifications are illustrated by the appearance of fireproof motion-picture booths, exhaust fans to take out smoke in case of fire, and reinforced construction for protection from earthquakes. The use of ramps and escalators is being advocated to decrease panic hazards and to provide safe means of egress for the physically handicapped.

Education for citizenship has achieved increasing importance as our American social, economic, and political life has grown more complex and bewildering. The many extracurricular activities which have been recently developed have given additional opportunities for the expression and development of student leadership. This change in the program has made necessary special rooms for meetings of various student-body organizations and workrooms for carrying on their work.

Education for Leisure

The pressing necessity for providing education for leisure is being recognized. Changes in these directions are illustrated by increased emphasis upon physical-activity programs, modifications in the music and art curriculums to develop proper appreciations as well as to develop skills in those who are talented, and the varied extracurricular activities that have recently made their appearance. The school plant shows the influence of this trend in the appearance of recreation and game rooms, social-activities rooms, gymnasiums, swimming pools, playgrounds, music rooms, art rooms, library reading rooms, club

rooms, general workrooms, museums and art galleries, activity auditoriums for dramatics and many other facilities.

Class size has an important bearing upon the construction of the building. Studies which have been made, present findings which are varied and contradictory. The final determination of optimum class size is a problem for future study. Whatever changes may come in class size, they will have an important bearing upon the construction of the building.

During recent years we have witnessed an expansion of education, downward, upward, and outward. These changes in the educational program have an important bearing upon the future school plant.

One of the outstanding changes in the administrative organization of the public schools during the past few years has been the development of the junior high school. The provision of exploratory courses for pupils of junior-high-school age requires the provision of physical facilities especially adapted to this type of organization.

Equality of Educational Opportunity

The idea of equality of educational opportunity has been one of the factors responsible for the abandonment of many one-room schools and the provision of more desirable consolidated schools. Many states already require the checking and approval of all building plans and are enforcing minimum standards. Even more recently the states have begun to assume responsibility for a minimum building program.

Many schemes have been suggested for more effective utilization of the building structure. The idea of multiple use of rooms has gained favor. The cafeteria and lunchroom is used as a music room, expression activities room, and study hall. The combined auditorium-gymnasium is very common. Still other examples of multiple use of rooms are use of the science room for more than one science and also for other academic work, the use of art rooms for academic purposes, the use of commercial classrooms for academic classes, and the use of the music room as a small auditorium. Where playground space is not available, portions of the roof have been developed into play areas.

The use of unit construction with movable end walls in rooms, built-in lockers in corridors, built-in storage space, flexible radio and motion-picture facilities separate boys' and girls' gymnasiums to allow use of shower and locker facilities through the day, classrooms with adjoining work and conference rooms, and the building of classrooms with workrooms between, so that the workrooms may be shared, are examples of attempts to secure more effective building utilization.

Adaptation to Educational Program

The recent literature in the field is replete with discussions of such principles as "functional approach to the design of school buildings," "flexibility," "expansibility," and "isolation." The acceptance of

these principles in planning and construction will exert a tremendous influence upon the adaptation of the building program to the educational program of the future. While recent emphasis upon the functional approach to the design of school buildings may have come partly as a reaction to the undue emphasis on historic style in the past, it is more likely that it has come about as a result of surveys and research studies in the field of school buildings. The principle of functional approach dictates the planning of the building to serve definite purposes. All physical facilities are located with reference to the purposes which they will serve in the carrying out of the educational plan.

The adoption of the principle of flexibility in school buildings will make possible the adaptation of the building more readily to changing educational objectives. Flexibility is obtained through the use of the unit plan of construction with movable partitions, reinforced-concrete floors, non-bearing interior walls, and the location of heating, lighting, and plumbing connections in corridor walls. Flexibility is also secured by designing the physical facilities for multiple use. If buildings are to be expandable, the original plans must include contemplated future additions. This provision will assure the possibility of making additions in the future that will not interfere with the existing plant.

With the expansion of the curriculum to include activities that have a tendency to disturb the rest of the school, there has developed the principle of isolation. The observance of this principle results in the location of such activities where they are least likely to disturb the rest of the school. As a result, music rooms, gymnasiums, and shops have been located where they are most completely isolated. Science rooms, home-economics units, and cafeteria units have likewise been isolated because of their disturbing odors.

All of the above-mentioned principles have a direct bearing upon the successful adaptation of the school building to meet the needs of the changing educational program. The factors responsible for the rapid changes now taking place in modern life are so varied and complicated that any attempt to chart the probable future course of events with any degree of accuracy is indeed difficult. Present educational trends point toward certain probable changes in the future development of the educational program and educational plant.

The present trend toward curriculum integration, already quite pronounced in many places in the elementary school, may in the future increase and even become marked in the secondary-school field also. The integration of secondary curriculum materials into one or a few core subjects would wherever introduced necessitate marked changes in the building plan. The many special rooms now provided would then become unnecessary. It is quite possible that they might be replaced by general workrooms grouped around a

central library. The specialized equipment necessary for the consideration of each of the units of the various cores could be provided in these general workrooms as needed.

Medical and Dental Clinics

In all probability we shall witness the development of clinics within the school for the study of the many phases of child life. We have already recognized the importance of medical and dental clinics. We may soon recognize the necessity of adding specialists for the analysis and treatment of the nervous, mental, and social needs of the child. With a more complete understanding of the individual needs of each child, a more effective program could be provided. Provision of the physical facilities for the housing of these clinics for the study of the various phases of child life would be necessary.

The rapid progress recently made in the development and use of visual and auditory aids has already been indicated. The constant improvement of both the radio and the educational radio program promises to provide this type of instructional aid to a rapidly increasing number of schools on a more extensive basis. With the probable development of television on a commercial basis, we may expect its ready adoption as a tool of instruction.

The specific physical facilities required by the addition of television instruction will become more apparent as more progress is made in this field. The development of motion pictures in color and the possibility of showing the third dimension may greatly enhance their future value. The new emphasis upon the museum will necessitate the provision of rooms especially adapted to this type of visual instruction.

While considerable emphasis has already been placed upon various types of exhibits, and exhibit space is already being provided in some instances in corridors, foyers, alcoves, and in classrooms through the provision of increased bulletin-board space, it seems probable that in the future the building will provide more specialized and better equipped facilities for exhibits. The use of these various visual and auditory aids may make even more necessary increased and diversified space for the storage of visual materialism.

Problem of Adult Education

The shortening of the working day, the working week, and the working life of the individual is providing an enforced leisure which may be capitalized upon. It is probable that the program of secondary education may be modified to meet this changed demand by providing an upward extension of the secondary-school program with larger opportunities for cultural training and a later emphasis on vocational preparation. It seems probable that there may be a materially upward extension of compulsory education. Recent attempts to modify our school program to provide more effective training for citizenship, leisure, and health

The perfection of a new school building does not depend upon the brilliant originality of the plan, but upon the many refinements which use and experience have found necessary to facilitate the learning process on the part of children and the teaching and supervisory processes on the part of the teaching staff.

have been pointed out. We may expect to see an increased emphasis upon training for service occupations, rather than training for production of material things. This will probably necessitate the provision of more specialized facilities for those subjects designed to give cultural and recreational training.

The provision of adult education will lead to the use of the school plant during more hours of the day. The same curriculum modifications which are being made for the training of our youth must be adapted to the adult population. The school will provide readjustments to give vocational training to those who have been the victims of technological unemployment and prepare them for new and worth-while vocations. Freedom of development in these directions is largely dependent upon the intelligence and the rapidity with which the building program may be adjusted.

The school must come to a realization of its importance as a community center and provide for the social, recreational, and educational needs of the community much more adequately than it has in the past. The development of a comprehensive intramural program to include all age groups would be a great stride forward in the establishment of the school as a vital factor in community life. For the carrying out of an extensive intramural program it will be necessary to enlarge greatly the playground to include adequate space and equipment for all age groups and to provide artificial illumination for their use at night.

It might also be necessary to provide more gymnasium and specialized play space within the building. The development of parks and gardens on the school site are possibilities as yet little realized. Larger materials will be required for the use of adults in the carrying out of their work in the shops. This will necessitate the provision of more storage space so that the materials used by one group will be out of the way when the room is used by another. The school museum, art gallery, exhibition foyer, library, cafeteria, recreation and game rooms, conference rooms, music rooms, social-activities rooms, club rooms, activity auditorium, shops, and general workrooms will all play a part in enriching the life of the community.

Research as a Guide Post

Research promises to be one of the most important factors in the determination of the future school educational and building program. We are giving greater recognition to the accomplishments of the research worker. Research studies are providing the answers to educational problems hitherto unsolved. Present and future research studies will provide the answers to many more of these perplexing problems.

This increasing importance and acceptance of research in the field of education is indeed encouraging. It gives promise of the development of an educational program and an educational plant which will meet the needs of our people more satisfactorily than they have ever been met before. In this whole process it is essential that we recognize that an inadequate building plan may retard or even block essential educational progress. The school plant, grounds, and equipment are to be developed not for their own sake but only for the sake of their contribution to the rapid and adequate furtherance of the ends embodied in the visualized educational program.



Dramatics is an integral part of the curriculum at the Webster Groves Junior High School, Webster Groves, Missouri. Students have experience not only in acting but also in judging plays, building scenery, and managing the productions

A Formula for Measuring Junior-High-School Capacity

N. H. Hegel, A. M. Jensen, and A. I. Heggerston¹

School administrators, in dealing with building programs, frequently feel the need of a formula for determining the capacity of secondary-school buildings. Questions such as the following frequently arise: What is the true capacity of a building? In cases of overcrowding just how great an overload exists? Just when is the need for further building indicated? Among a group of crowded situations, how can a fair comparison of building capacities be made in order to rank them according to need?

Measures of room or pupil-station utilization have been developed to answer such questions. Important among them are the Morphet and Packer formulas.² The first of these measures is designed primarily to rate buildings according to per cent of utilization, using either the classroom or the pupil-station as a base. In order to use this method it becomes necessary to determine what per cent of utilization is considered standard. Obtaining such a standard percentage involves the same difficulties as obtaining a formula based directly on the educational standards governing the use of the building. Morphet offers tentative standards derived empirically. The educational factors underlying these standards are given no recognition in the formula itself. It is less useful, therefore, when one is anxious to see the bearing that any individual factor has on the whole situation.

Packer,³ on the other hand, provides a simple method for computing the number of rooms of various types needed to house a standard program for a certain number of pupils. In developing a measure for comparing the capacity of junior-high-school buildings in use in Minneapolis, the writers arrived at a formula similar in many respects to the Packer formula.

Capacity is a variable depending upon standards governing such important factors as (a) the curriculum, (b) class size, (c) number of periods in the pupil-week, (d) number of periods in the teaching week. These must be included in any adequate comparison of buildings operating under the same set of educational standards or of the same building operating under changed educational standards. The curriculum becomes a determining factor as soon as specialized rooms are required for any of the subjects offered. Any change in the proportion of time a pupil spends in the various types of rooms will modify the capacity of a building. For example,

academic subjects require a different type of housing than industrial courses. An increase in the proportion of industrial work in the average pupil's program will decrease the industrial capacity of the building and at the same time serve to increase the academic capacity.

The number of periods in the pupil day, the number of periods in the teacher day, and the pupil-teacher ratio are interlocking factors which together determine class size and consequently affect school-building capacity. Whatever pupil-teacher ratio or class size is set up as standard, the actual classes will, of course, range in size above and below the mean. Any increase in average class size, within the limits of the capacity of the room, therefore, will increase the building capacity.

To the extent that types of rooms are not interchangeable, a building may have as many different capacity ratings as there are types of rooms. To the degree that each type of instruction is considered fundamental, the normal capacity of a building

but in considering the ninth grade the choice of the pupils had to be considered. The figures used in the following table to show the pupil demand are based on the experience of the past two semesters. The classification of room types and the pupil demand stated in terms of the average number of hours per week per pupil are given below.

In the classification in Table I general science, junior business training, and typing are included with the academic subjects. Because of the equipment used, there may be some question about including typing. However, since typing was not offered in all the junior high schools and since the formula was to be based on average conditions in all Minneapolis junior high schools, it was considered best to include it. Band and orchestra rooms, lunchrooms, and auditoriums likewise were considered, but it was not deemed wise to set up a capacity index for them. Since there is no set standard class size in Minneapolis, the average for the previous semester was taken. This average size reflects the administrative practice which results from the standard pupil-teacher ratio of 31 and the teacher day of 5 periods which are now in effect.

The formula proposed may be stated as follows:

$$\text{Capacity} = \frac{\text{No. Classrooms} \times \text{Average size of Class} \times \text{No. Weekly Periods} - C}{\text{Average Number of Pupil Periods per Week}}$$

C represents a correction for classrooms which are too small for a class of average size. The capacities of the rooms themselves are dependent upon the provision of the building codes set up by law or regulations established by the board of education. Using the Minneapolis standards given in the preceding table and figuring 25 periods weekly as the normal use of a classroom, the capacity of a junior high school in terms of academic classrooms would be:

$$\text{Capacity} = \frac{\text{No. of C.R.} \times 36.1 \times 25 - C}{17.9}$$

For buildings which have no undersized classrooms, this formula may be reduced to the simple form:

$$\text{Academic Capacity} = 50.4 \times \text{No. of classrooms}$$

It is obvious that the normal capacity of a building as thus derived can be exceeded by the introduction of peripatetic teachers. The question of whether this is desirable educational policy will arise wherever the pupil day and teacher day do not correspond in length. Where the difference does not exceed one period per day, the actual saving of space will be small if all the teachers involved are to be provided with adequate office space. In any, even 100-per-cent use of academic rooms could be secured only if the ratio of peripatetic

TABLE I
Av. No. of Pupil Periods
per Week

	7th	8th	9th	Average	Class Size Average
English	8	8	5.0	36.5	
Social Studies ..	5	5	5.0	37.	
Mathematics ..	5	5	2.8	36.	
Foreign Lang. . .	..	..	.7	26.9	
Gen. Science. . .	..	..	1.6	35.8	
Jr. Bus. Train. . .	..	..	1.5	34.6	
Typing .....	..	..	1.1	32.8	
1. Academic	18	18	17.7	17.9	36.1
2. Art	2	2	.5	1.5	35.2
3. Home Econ. . .	2.5	2.5	.8	1.9	27.8
4. Ind. Arts	2.5	2.5	1.4	2.1	28.5
5. Chorus	2	2	2	2	(see text)
6. Phys. Educ. . .	2	2	2	2	(see text)
Non-Academic. . .	11	11	6.7	9.5	
Total Class					
Periods	29	29	24.4	27.4	
7. Study Periods. .	1	1	5.6	2.6	
Total Hours					
per Wk.	30	30	30.0	30.0	

would be no more than the capacity of its most limited type. In Minneapolis, the junior-high-school curriculum is so largely academic that the academic rating can be used as a practical measure of the capacity of the building as a whole. It is obvious that the fewer the types set up the simpler will be the statement of capacity. In Morphet's study, the high-school rooms were classified into 27 types. In applying the formula which is described later to the junior-high-school buildings in Minneapolis, the number of room types was reduced to seven. This was possible because of a certain amount of interchangeability. In dealing with senior high schools, more types would be necessary.

The need for each of the various types of rooms was measured in terms of pupil registrations. In Minneapolis, there are no electives in the seventh and eighth grades,

¹Mr. Hegel is principal of Folwell Junior High School, Minneapolis, Minn. Mr. Jensen is instructor; Mr. Heggerston is director of research.

²Morphet, E. L., "The Measurement and Interpretation of School Building Utilization," Bureau of Publications, Teachers College, Columbia University, New York City, 1927.

³Packer, P. C., "Housing of High-School Programs," Bureau of Publications, Teachers College, Columbia University, New York City, 1924.

teachers to regular teachers happened to be exactly right and if it were possible to program perfectly.

In the case of the special classroom, because of the greater amount of space necessary and because of the expensive equipment, use of the rooms for only 5 periods in a 6-period day would be less justifiable. In figuring normal capacity in terms of non-academic rooms, therefore, 30 periods per week were used instead of 25. In gymnasium and chorus classes, the average size has less significance. The variability is very great and is due to factors other than the

desirable maximum. An arbitrary number, 60, was taken as the standard size for the purpose of figuring capacity.

Using the standards as outlined and reducing the formula in each case, the equivalent of each type of classroom in terms of pupils was found to be:

TABLE II		
Academic	504	× Number of Classrooms
Art	704	× Number of Classrooms
Home Economics	438	× Number of Classrooms
Industrial Arts	407	× Number of Classrooms
Chorus	900	× Number of Classrooms
Physical Education	900	× Number of Classrooms

No index figure for study hall was derived because of extreme variability in the method of housing, some schools using the auditorium or the lunchroom, some using regular classrooms while some use rooms provided especially for study.

The formula may be made applicable to other communities by substituting local standards and data in the terms of the formula. The extreme simplicity of the formula has made it of practical value in Minneapolis. It is offered here with the thought that it might be of some use elsewhere.

Building Schools Well Adapted to the Newer Methods in Education

Alfred S. Lewerenz¹

The Los Angeles City School District is now engaged in a \$23,000,000 rehabilitation program as an aftermath of the earthquake of March 10, 1933. A number of new buildings are being erected to take the place of structures seriously damaged or weakened. In the construction of these new schools, attention has been given not only to safety factors but also to the needs of the modern educational program. In the case of the primary units, for example, there are a number of desirable changes from the traditional school-building plan.

Preliminary to setting up the specifications for the primary units, much planning and research was done as to the requirements of teachers and pupils, where instruction is based on activities and units of work. Plans were drawn with the details checked by an advisory group of superintendents and supervisors. An example of one of the new primary units may be seen at the Corona Avenue School, located in the Bell area of the Los Angeles City School District.

Exterior architectural details vary with the various buildings but the interior arrangements in all cases have the same essential details. The plans recognize the fact that with the coming of the more informal type of school program has arisen the necessity for a less rigid and fixed schoolroom plan.

A visitor to the Corona Avenue Primary Unit will observe details such as the following:

1. The building is one story, with all classrooms having entrance from two sides.
2. The construction is strong and there are no heavy masonry decorations to endanger lives in the event of a severe earthquake.
3. There are no inside halls. A long porch or covered walk gives access to the rooms.
4. Each room opens directly out on to its own patio containing lawn, shrubbery, and trees.
5. The side of the classroom next to the patio is of glass, with large sliding glass doors.
6. The classroom can be made part of the patio by sliding back the glass doors.

7. The side of the classroom toward the patio is recessed about 6 ft., making a porch which serves as a transition from the play yard to the room.

8. A heavy canvas curtain, mounted at the outer edge of the porch, can be lowered sufficiently to cut off direct sunlight.

9. There is running water and a sink in each room.

10. Each room is well provided with cupboards and lockers.

That the design of the new primary units has merit is manifested in a number of ways. In the case of the Corona Avenue School, the principal states that the new building has been

a stimulus to teachers to improve their teaching methods. The facilities for enriched instruction provided in the new rooms are such that the teachers are encouraged to abandon formal methods. The presence of a sink and running water in the room make possible a number of activities not possible in the conventional room. The glass partitions permit part of the class to be working out-of-doors and yet be under the direct supervision of the teacher. In the older type of building if part of the class goes out on the grounds they must be supervised by some other teacher.

Since, with activity-type instruction, the children are working and moving about, the

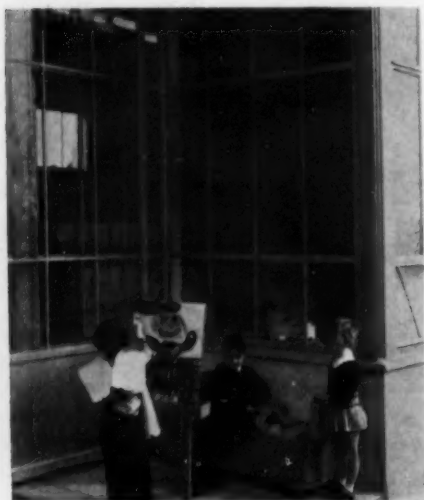


The kindergarten room of the Corona Avenue School, Los Angeles, California, has access to a large playground. When the doors are rolled back the room and yard really become one

¹Assistant Supervisor, Division of Instruction and Curriculum, Los Angeles, Calif.



Primary Unit at Corona Avenue School, Los Angeles, California, as seen from the playground. The absence of ornate decorations will be noticed. The building is of stucco and metal built in a manner designed to resist earthquake and fire



Primary Unit, Corona Avenue School, Los Angeles, California. The little girl is painting her picture on the porch that forms the transition between the yard and the room

pride in the primary unit and maintain closer connections with the school than formerly. Even the local civic officials feel that the new building is a community asset.

Administrators responsible for the present

building program realize that the designs for the physical plant must be in harmony with the newer educational practices that have proved desirable in increasing the school's service to children and youth.



The rooms in the primary unit of the Corona Avenue School, Los Angeles, California, have no fixed equipment permitting classroom projects not possible with the older type of room where each child had a desk that screwed to the floor

additional space provided by the porch and patio make for less confusion. All tables and desks in the new rooms are arranged to be movable. Tables can be quickly placed out in the yard when needed. Equipment constantly is being used in new ways as circumstances may suggest.

It has been found that parents take great

Modernization of Old School Buildings

Arthur A. Knoll¹

The American Nation is in all essentials and at all times progressive. In its politics and social relations, in its industry and commerce, it is impatient of old forms and old ways of doing things. This is likewise true of its construction of buildings.

Nowhere is this intolerance of old standards more justified than in its school buildings. The ever-changing methods of education soon make obsolete the facilities not long since up-to-date. Newly enacted safety regulations add their force, and the architectural ugliness of our early schools comes more and more to justify their abandonment.

The improvement of schools may be accomplished either by modernization of the old plant, or by new construction. The comparative ease in obtaining money for public-school rehabilitation prior to 1929 encouraged the general razing and replacement of obsolete buildings. However, as the financial strings began to tighten and money became more difficult to obtain, some communities found it necessary to look to the remodeling or modernization of existing facilities in lieu of new construction.

In some cases modernization is not undertaken as a specific project to be completed at one time, but is carried on step by step through several years until the entire plant is brought to a measure of efficiency. Since the accumulating outlays may well represent in the aggregate an expenditure much in excess of that which would be required for new construction, such progressive remodeling should not be undertaken until a study has been made to determine the relative costs.

The Element of Costs

There is a general relation between justifiable cost of modernization as opposed to new plant construction. Financial stringencies may modify its application slightly. Thus where funds are not available, a year by year remodeling may be proper even though the cost may be higher than would be justified for undertaking all the remodeling at one time. Likewise, complete modernization may be warranted at higher relative costs when the available money is limited.

Generally, however, in the absence of real financial stringency, the ratio between modernization and new construction expenditures should be observed. Where a school has served, say, 25 years, and will, after modernization, apparently serve another 25 years, and the cost of modernization is only 25 per cent of the cost of a new

building with an estimated life of 50 years, it would quite definitely be more economical to modernize the plant. If, on the other hand, the cost of remodeling would be 50 per cent or 40 per cent or even 35 per cent of new construction, it would be advisable to build the new plant if funds are at all available.

In this connection sight should not be lost of the fact that the maintenance of remodeled buildings is more expensive than that of new structures.

From the foregoing it is apparent that a study should be made of relative costs in order to determine the more economical program. This should not be done in a slipshod manner. To be certain that the comparison is valid, it is necessary that modernization should provide in all essentials the same features as would be afforded by a new building. Otherwise, the survey would lead to erroneous conclusions.

Three Basic Considerations

There are certain things that are essential to modern school buildings. These are a pleasing appearance, safety for the occupants, and adequacy for, and adaptability to the school needs. The determination of what is essential for these qualities is in each case a technical problem. The appearance is in the province of the architect. Assurance of safety is a problem for structural engineers, sanitary engineers, fire- and panic-prevention officers, and accident-prevention officers. Provision for adequacy and adaptability falls within the scope of the educational advisers. Before a modernization program is undertaken, these technicians should make extended study in their respective fields to determine what steps are necessary for the production of a satisfactory school plant. It will be well worth the expenditure of a reasonable sum of money to engage experts of known ability to make this study.

As regards appearance of school buildings, there is a growing feeling that children cannot acquire the best education in architectural monstrosities. Frequently offensive appearance can be transformed at little expense. The building should be made to conform to and be in harmony with the surroundings. Its outward appearance should be clean and a credit to the community generally. Expenditures on this work are oftentimes reflected in an increase in the real-estate values about the school site. In cases where the architecture of the school was originally good, no additional work on this score is necessary.

Safety in all types of buildings has been materially advanced by the enactment of laws and regulations, covering construction, fire and panic prevention, sanitation, and accident prevention. In school buildings,

because of the immaturity of the occupants, such safeguards are particularly important.

Safety of Structure

Before considering the modernization of a school plant it is necessary to determine that the building is structurally safe, and if not so, to make provisions that it shall be. Too often plans and specifications are prepared, contracts let, and work begun before proper investigations have been made. Extras under these circumstances are numerous and costly.

A structural examination of the building should include foundation studies to determine the effectiveness of the soil for bearing, and to determine if the foundations as installed are adequate. Trusses should be checked to see that all points are bearing, and all members acting. Bearing walls should be examined to determine their possible future life. All walls should be plumb, and bearing of members on walls checked to determine if the building has remained in its original position. Plaster should be examined to determine its secureness. Deterioration of various building elements should be observed. Often wood members are subject to termite infestation and dry rot, especially in those cases where joists and other members are poured in concrete. Those who are in a potential earthquake country, will want to be sure that their buildings are designed against lateral force as well as against vertical loads. All the foregoing defects and any others found on examination should be considered in the estimate for modernization.

Fire and panic prevention have probably received a more careful consideration in legislation than any other building requisite. In buildings of more than two stories all structural parts should be of noncombustible materials; in the two-story buildings corridors and stairs should be constructed of noncombustible materials throughout. They should form one continuous unit so that children may be emptied from classrooms into these corridors as a means of exit.

Doors and Panic Prevention

There should be two doors from each classroom so that the closing of one from any cause will not trap the children within the room. All arrangements of exits should comply with existing regulations as to width, hand rails, hang of doors and other essentials, or if there are no such local regulations, then with the regulations of the nearest authority. Panic bolts should be provided at all exit doors. All classroom doors should be provided with thumb turns operative to unlock, but not to lock, the door from the inside.

Proper fire stopping should be provided

¹Business Manager of the Long Beach City School, Long Beach, California.

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in the walls of wood-frame and steel-frame buildings to eliminate the fluelike action of these otherwise open spaces. There should be no open stairwells extending to the roof or to skylights in such a manner as to furnish a draft flue for fire. Roof spaces should be separated into areas not exceeding 1,500 square feet by the insertion of fire partitions. Fire separator walls of non-combustible materials should be used to break up the buildings into areas complying with fire regulations for the type of construction used. Closets with wood studs should be plastered to provide at least one hour fire resistance. Proper standpipes with adequate water supply, and niches for fire extinguishers should be provided.

Improper electrical installations are a source of countless fires. All installations should be made to comply with the latest rules of the fire underwriters. Open wiring should be replaced with conduit wiring. Open knife switches should be removed, and protected switches used. Wire and cable loads should be checked, and, if found inadequate, supplemented with additional copper.

Boiler rooms in most old buildings are fire hazards. All walls should be of not less than four-hour fire-resistant construction, and all openings should be provided with metal-covered doors with louvers. No wood steps, ladders, or bins should be permitted. All should be of steel or other incombustible materials.

Without all these provisions for fire and panic safety no building can be said to be modernized.

Sanitation and Plumbing

Sanitation likewise presents problems in modernization. The old method of providing toilets in basements or in separate buildings is no longer acceptable. These facilities should be provided on the floors occupied by the children. Dark, dingy toilet rooms with no ventilation, with wood partitions and absorbent floors, with old flush-down closets and lightly enameled iron urinals do not belong in the school building. Ventilation to keep the toilet under a slight vacuum should be provided. Wood partitions should be replaced with marble, opaque glass, or other nonabsorbent materials. Cement floors, or better, vitreous-tile floors are acceptable. Old flush-down closets are to be replaced by more sanitary fixtures with extended-lip and open-front seats. Enameled-iron urinals with numerous joints in which corrosion inevitably occurs should be replaced with vitreous china. Lavatories should be installed, as should drinking fountains. Toilet-paper holders of a type to prevent waste, paper towels in proper containers, and soap dispensers should be placed in toilets.

Shower rooms likewise should be built with vitreous-tile floors and walls, or with cement floors and cement plastered walls and ceilings. Shower unit stalls should be constructed of materials impervious to water, such as vitreous tile, cement plaster, or metal. Good drainage should be provided

to guard against "athletes' foot" and other insanitary conditions.

Without proper sanitation schools become a menace to the health of the community.

Safety and Accident Prevention

The growing use of machinery in industry has made the entire country responsive to accident prevention, and this is reflected throughout the school plants. In modern school shops overhead-belt drives are replaced with individual motor drives. Printing presses, saws, jointers, planers, power punches, drills, and in fact all power machines, should be so oriented that the operator has full light upon his work, and so that the other students are not endangered by moving parts.

All balconies and open wells should have their protective railings raised to not less than 42 inches in height, and should have toe boards to prevent articles from falling on persons below. Openings to attic or roof spaces should be provided with iron ladders built in place.

Electric light controlled from switches at the entrance door of each room should provide sufficient light so that all parts of the room may be traversed without the danger of stumbling or falling over objects. In addition to general lighting, all power machines should be equipped with local lamps so arranged as to afford safe working conditions on all parts of the machines.

All areas including roof spaces and tunnels, even though unoccupied, should have lights so that they may be entered safely. Assembly rooms seating more than 300, and all corridors should be equipped with emergency lighting circuits on a separate meter, and preferably on a separate power supply from that of the other lights.

All the foregoing methods of accident prevention are available today.

Educational Adequacy

The third standard for the modern building is that it shall be adequate and adaptable to the needs of the school. Because of the fact that a school building is used primarily for personal service, and thus is occupied by many people, this requirement takes on special importance. Many old school buildings provide natural light of insufficient intensity and poor distribution. If the eyesight of children is to be protected, it is necessary that the fenestration be improved. All classrooms should be provided with a glass area equivalent to at least 20 per cent of the floor space. The windows should be placed on only one side, and so that the height of the head jams will be approximately one half the width of the room. Venetian blinds or double-hung shades should be used so that the light on the desks nearest the windows, and on those farthest away will be as nearly equalized as is possible. Old plaster should be in good condition. Any which has lost its life or become damaged should be replaced. In order to provide proper sanitation and lighting, the walls should be painted with

a semigloss oil paint in a color which will reflect a large portion of the light. Tinting and calcimining are not recommended since they make impossible the washing of classroom walls.

The old type wardrobes which were an open part of the classroom should be replaced by enclosed wardrobes.

Composition blackboards or blackboards formed by painting on plaster, should be replaced with natural slate. Bulletin boards of cork or of a similar material should be placed above the blackboard and at the ends, for the display of artwork and directional information. The modern school program requires many cupboards to hold the materials necessary for project work.

The floors of most old buildings are of a soft wood which is highly absorbent, and which is subject to much splintering. If these floors have been treated with oil for many years, they are greasy and insanitary. They should be replaced with maple, oak, or composition floors.

Roofs, unless in good condition, should be replaced.

Doors to classrooms and exits should be provided with checks to assure proper closing. Kick plates should be installed.

Lighting of Classrooms

Aside from the impetus given thereto by accident prevention, the artificial lighting of schools has become increasingly important as the rooms are used more generally for evening sessions. The former two lights in each classroom are now replaced in most cases by four or six, assuring at least 8 foot-candle power at desk height in all parts of the room in regular classrooms, and as much as 20 to 25 foot-candle power in sewing rooms and others where close work is done. Lamps may be inclosed by direct-indirect lighting units of not less than 83 per cent efficiency, and with an intensity of not more than five candle power per square inch on the face of the fixture. Plug-in receptacles should be provided for projection machines, for motion pictures, and for cleaning devices in regular classrooms; for bookkeeping machines in the commercial department; for sewing machines and irons in the homemaking department; and for office devices in the administrative suite.

House phones connected to a central board in the principal's office assist materially in the administration of the school. An electric clock controlled from a master in the administrative offices should be installed in each room. Program buzzers in each room and passing bells in the corridors, controlled from the master clock, are desirable for changing classes. Classroom buzzers may be dispensed with, but corridor bells are almost essential for directing the passing between periods, and for fire alarms.

Heating and Ventilation

The old-time hot-air furnaces and high-pressure steam-heating plants no longer afford satisfactory heating service. The hot-air system with its uneven heating cannot

meet the exacting demands of today. The numerous heat flues with extensive flue areas are a source of danger in case of fire. High-pressure steam-heating systems result in extraordinarily high maintenance costs. They likewise require the continual supervision of high-salaried stationary engineers. The modern low-pressure steam systems operating at all times at less than five pounds pressure are low in maintenance cost, and require only occasional attention from the regular caretaker or janitor.

While it is not here contended that all the refinements of heating and ventilating, such as individual heating and ventilating units for each room, air conditioning, and automatic temperature control in individual rooms, are essential to a satisfactory heating and ventilating plant, yet these refinements are available.

It is important for safety, and will lead to ultimate economy, if the high-pressure systems are replaced with modern low-pressure installations, including such refinements as each community deems proper for its own schools.

In the modern high school and junior high school, the educational program requires a much more extensive equipment for homemaking, for shop- and for laboratory work. The high-school chemistry laboratory includes experimental tables equipped with a.c. and d.c. electric circuits and gas and water for each student. In chemistry and in physics the teacher should have a demonstration desk equipped with these utilities. In homemaking education electric plug-in receptacles are required for sewing machines and irons, and plumbing

connections for ranges and sinks. Shops require electric connections for the many types of machines now necessary to give the student training in the technique of our mechanized age.

Indeed, adequacy and adaptability to the needs of the modern school require extensive remodeling of old school buildings.

Charting the Job

It is apparent from the foregoing that the study of costs is complex, and that the items are so multifarious that some of them may be easily overlooked. To avoid this mishap a standard "Building Examination and Estimate Chart" should be used. It should be divided into the main headings of (1) Architectural Appearance; (2) Safety of (a) structure, (b) fire and panic prevention, (c) sanitation, (d) accident prevention; (3) Adaptability and Adequacy for the Operation of a School. This estimate sheet should have under each classification a complete list of items applicable thereto.

These lists should be presented for estimate to the experts employed to survey each classification of requirements. An estimator should be engaged to work in with these various experts, as often the technician knows the need, but is not informed on matters of cost. The estimator will prepare work sheets on which will be entered the detailed expenses. From the work sheets he will transfer to a "Building Examination and Estimate Chart" the costs applicable to the respective items.

The chart when completed should be

returned together with work sheets, to the board-of-education official assigned to the co-ordination of the building program. After checking to see that there are no duplications or inconsistencies, that all items necessary to a complete and real modernization are included, and that the proposed work falls within the policy of the governing board, he will have the various costs totaled. With his report, the board of education is for the first time in a position to decide intelligently between modernization and new construction.

If modernization is chosen, the preparation of plans and specifications will proceed in the usual manner. However, more care is required of the architect and the school employees than would be in the case of new construction. The cost study should be used extensively and intensively in the outline of work to be done. Extreme care must be exercised to see that all projected work ties into the existing structure, and that there is no overlapping. Provisions of plans and specifications, of bidding documents, and of construction agreements must be so precisely drawn as to preclude doubt and confusion in a situation where very little carelessness or uncertainty in the documents will result in endless difficulty.

If the study has been done completely and thoroughly by competent experts, if the results thereof are used intelligently, and if the contract documents, such as plans, specifications, bid forms, and construction agreements, are drawn in a precise manner, the remodeling program should result in a satisfactory and effective modernization of the old school plant.

A Century of Progress in School Plumbing and Sanitation

Forest R. Noffsinger

The earliest reports on the condition of school facilities invariably mentioned the lack of proper toilet provisions. The 1838-39 Connecticut report¹ mentioned this "unpardonable neglect on the part of parents and guardians," and stated that many districts provided no outbuildings at all. In New York, according to Potter and Emerson in 1842,² "not more than one in 20" had this appendage and the visitors almost invariably found that those which did exist were in a bad state. The report for 1844³ found that, of 9,245 schools, 1,810 had only one privy, 1,012 had separate ones for male and female, and 6,423 had none whatever.

The Michigan school report for 1847⁴ stated, as one of the principles for ideal schools, that there should be provided "two privies, in the rear of the schoolhouse,

separated by a high close fence, one for the boys and the other for the girls." The board of education of Boston⁵ in the same year in its list of objects to be sought in the planning of school provisions stated that it desired "to so arrange the usual outdoor conveniences, that the scholars should not have to go out of doors in stormy weather, or downstairs, to gain access to them, and at the same time by removing them from the playground to obviate the objections which have been made by some teachers to having both sexes in the playground at the same time during the recesses."

In accordance with the policy just stated, the Ingraham School was planned with toilets in a projection built at one end of the building.⁶ This projection was separated from the main building by a space of four inches and openings led into it from each

floor. A cesspool was placed under the projection and the separate brick wells from each toilet ended below the surface of the water in the cesspool, thus preventing the odor from other wells entering any toilet. The toilets were ventilated by open windows and a vent shaft ran from the cesspool to the top of the building.

The first buildings found to have the toilets located in the basement were schools No. 28 and No. 30 in New York City, erected in 1852.⁷ In both cases the toilet rooms were located on the outside wall and there seems to have been an attempt made to isolate them as much as possible from the main part of the building, and to have them in close connection with the playrooms.

Barnard in 1854,⁸ after discussing the lack of outdoor toilets stated that "there should be one provided for each sex, widely

¹Barnard, Henry, *School Architecture*, p. 18.

²Potter, Alonzo, and Emerson, George B., *op. cit.*, p. 177.

³Barnard, Henry, *op. cit.*, p. 29.

⁴*Ibid.*, p. 43.

⁵*Ibid.*, p. 176.

⁶*Ibid.*, p. 187.

⁷*Ibid.*, pp. 226, 232.

⁸*Ibid.*, p. 63.

separated from each other, enclosed from the general playground, and accessible by a covered walk, and, if practicable, from the basement, or clothes room appropriated to each sex, and kept locked, except during school hours." Barnard also reproduced a plan from Richson's *School Builders' Guide* for a satisfactory toilet arrangement, the principle of which was the passage of water from a cistern, under the seats, to a drain pipe. In this plan urinals were made by placing a slab of Valentia slate, 1½ feet high, in a sloping position so that the lower part dipped one inch into the water of a trough on the floor.

Burrowes in 1855⁹ gave a very complete discussion of the principles and standards in the construction of outdoor toilets. His principles were "(1) These buildings should always be so located as to be, as much as possible, out of view, without removing them to an inconvenient distance. (2) Their outward appearance should not be such as to invite injury, but should be so neat and agreeable as to claim for them care and protection. (3) Their form and arrangement should be calculated to prevent them, as much as possible, from becoming offensive to the senses or injurious to health." The best location, according to Burrowes, was on the extreme rear of the school lot and with the entrances toward the back fence. The outbuildings should be of the same material and in the same style as the schoolhouse itself. The building should be divided into apartments two and one-half feet wide and five feet long. The well should be round or oval in shape. No exact rule for the size of the building was given by Burrowes for, he said, the size will be in proportion to the size of the school. "The two great objects to be effected by the proper arrangement and care of this building are ventilation and cleanliness." Ventilation can be best secured by providing hollow partition walls opening into the well at the bottom and into a closed attic at the top with vent windows at gable ends and a cupola on the roof.

The Dwight School of Boston, built in 1858,¹⁰ and the Hollingsworth School of Philadelphia, erected in 1867,¹¹ are representative of toilet provisions for city schools during the period. A brick wall was built across the back of the school lot and a fence connected the rear of the school building to this wall. The rear entrance on either side of the fence led directly to the toilets built against the rear wall of the lot. The inadequateness of the provisions may be seen in the statement that for the Hollingsworth School, 20 seats were provided for the 32-room building containing a school population of 1,100 pupils, a ratio of one seat for 55 pupils.

Chase, in 1868,¹² gave complete specifica-

tions for outdoor toilets. He stated that toilets should be separate; that they should not be within 100 feet of the well or the house nor near each other; that a tight board fence or evergreen hedge should divide the back yards; that there should be latticed screens provided; that the toilets should be supplied with vaults not less than six feet deep through which a stream of water should pass if possible; that arrangements should be made to prevent the boys from standing on the seats; that subdivisions for each seat should be two feet wide; that the interior should be painted and sanded; and that locks should be provided for the doors.

The first specification list for a school cesspool was given by Eveleth in an 1870 publication.¹³ The cesspool was to be built of stone laid in mortar, be five feet in diameter and six feet deep, be covered two feet below the grade level with sound three-inch hemlock plank, and be located at least 50 feet from the building.

Practice did not keep up with theory as is indicated by the 1876 Minnesota school report¹⁴ in which it was reported that of 2,923 schools investigated, 511 had two outhouses, 1,220 had only one outhouse, 1,176 outhouses were in good condition, 907 were in bad condition, and there were no outhouses for 840 schools. An attempt to force adherence to accepted principles in the provisions for outhouses was made by the State Superintendent of New Jersey, in 1871¹⁵ and again in 1874.¹⁶ He recommended legal action to compel school authorities to provide proper toilet provisions under penalty of being deprived of all state apportionment of school moneys.

In the period following 1870, with the introduction of city water into school buildings, water closets began to be used. Lincoln in 1878¹⁷ classified water closets commonly used as follows: "(1) a pan-closet with a handle, which when raised empties the pan, and lets in fresh water; or (2) a hopper-closet, without the pan, and often provided with automatic apparatus for discharging water into the hopper; and (3) a simple trough of masonry and cement, filled with water, which is frequently renewed." It was claimed by Lincoln that the latter of the three classes had been used in the larger schools and had proved satisfactory although it was necessary to place the system in the basement to prevent freezing. "The space under the

seats," according to Lincoln, "should be ventilated by a large pipe or pipes led to a flue which does not communicate with the rooms, and which opens above thereof, far from windows; the flue ought to be provided with some means of securing a draught, either by heat or otherwise." Hopper-closets, Lincoln said, might be placed, if desired, in each story and in the cellar, but each ought to have its window opening to the outer air, and should be supplied with heated ventilating flues. As to the location of closets, Lincoln favored placing them in the basement but in "an apartment strictly separate from that containing the furnace or playroom" and they should have access to outside windows.

For rural schools, Lincoln advocated the use of earth-closets consisting of a portable box with a lid so arranged that by pulling a handle a quantity of powdered earth was thrown over the matter.

Partitions for urinals were recommended by Clark in 1880.¹⁸ Stalls should be 18 to 20 inches wide. A single trough or individual iron urinals might be used. Partition walls should be six feet high. Floors about urinals should be made of slate, marble, or concrete. Clark stated that "with plenty of water the best closets are the enameled hoppers with enameled traps supplied automatically by a tank with siphon or 'tumbler' so as to flush all the closets once in ten minutes through the day." Clark advocated earth-closets for rural schools and described a mechanism for scattering powdered earth over the vault by turning a lever or crank on the outside of the closet.

A committee appointed in 1880 by the *Sanitary Engineer*¹⁹ to investigate school buildings in densely populated areas reported that in their opinion "water-closet accommodations should be provided for on each floor"; and Billings two years later²⁰ claimed that toilets should never be placed in the cellar but on the same floor with and close to the classrooms.²¹ Billings also recommended water-closets of the porcelain-hopper overhead-tank type. He stated that toilet floors should be made to slope toward the drain which should be properly trapped to prevent sewer gas from entering the room; that soil pipes should be properly ventilated; that the vent pipe should extend through the roof; and that there should be a fresh-air opening from outside the building.

One of the difficulties encountered in installing water closets in outside toilets was the danger of freezing. In 1884 the Newton, Massachusetts,²² school solved this difficulty by using steam coils from the main building to keep the water from freezing.

⁹Clark, T. M., *Rural School Architecture*, pp. 30-2, 81-2.

¹⁰"The Week," *New England Journal of Education*, 11:184-5, March 18, 1880.

¹¹Billings, John S., "The Information Necessary to Determine the Merits of the Heating and Ventilation of a School Building," *Proceedings of the Department of Superintendence of the National Educational Association at its Meeting at Washington, March 21-3, 1882*, pp. 15-16. U. S. Bureau of Education, Circular of Information, No. 2, 1882.

¹²Billings, John S., "Letters to a Young Architect," *The Sanitary Engineer*, 7:6, December 7, 1882.

¹³Eveleth, Samuel F., *School-House Architecture*, George E. Woodward, New York, 1870. 17 designs, 67 plates.

¹⁴State of Minnesota, *Seventeenth Annual Report of the Superintendent of Public Instruction, State of Minnesota, for the Year Ending September 30, 1876*, p. 81. Pioneer Press Co., St. Paul, 1877.

¹⁵State of New Jersey, *Report of the State Board of Education and State Superintendent of Public Instruction for the School Year Ending August 31, 1871*, p. 40. Murphy and Bechtel, Trenton, 1872.

¹⁶State of New Jersey, *Report of the State Board of Education and the State Superintendent of Public Instruction for the School Year Ending August 31, 1874*, pp. 15, 23. William S. Sharp, Trenton, 1874.

¹⁷Lincoln, D. F., "Sanitation of Public Schools in Massachusetts," *Ninth Annual Report of the State Board of Health of Massachusetts*, pp. 234-8. Rand, Avery and Co., Boston, 1878.

¹⁸Burrowes, Thomas H., *Pennsylvania School Architecture*, pp. 146-8.

¹⁹Philbrick, J. D., "Plans and Description of the Dwight School House, Boston, Mass." *Barnard's Journal of Education* 4:769-73, March 1858.

²⁰Shippen, Edward, "Hollingsworth School," *Barnard's Journal of Education*, October 15, 1873, pp. 605-11.

²¹Chase, C. Thurston, *A Manual of School-Houses and Cottages for the People of the South*, pp. 56, 64. Government Printing Office, Washington, D. C., 1868.

An improved type of urinal was described by Lincoln in 1844.²³ This urinal was a "continuous upright surface of oiled slate with a platform of slate, and a gutter carved in the slate at the floor level." Lincoln also stated that "the floor of the apartment should be of stone slabs; not of bricks or ordinary cement."

In a description of a building erected at Chester, Pennsylvania, in 1886²⁴ the first mention of the installation of the Smead dry-closet system was found. This system became very popular during the years following. It consisted of withdrawing the foul air from the schoolrooms to a foul air chamber in the basement, passing it over the deposits in the toilets and removing it from the building by means of a foul-air shaft at the base of which a stove was placed to create a strong upward current.

The trend toward placing toilets in school buildings when city water was available made necessary in some cases the remodeling of buildings. A school building at Hartford, Connecticut, illustrated what perhaps became a more or less common practice.²⁵ Projections built at each end of the building were reached from the main building by passing through an open porch. The proper ventilation was secured by means of louvered openings near the floor for intakes, steam heating coils, and louvered openings near the ceiling for outlets. For urinals a new material was used. The partitions and backs of the urinals were made of half-inch plate glass, and the floors were made of one-inch glass imbedded in white putty.

Wells²⁶ in discussing toilets in 1886 classified water closets into two types, "those which are provided with mechanical parts, and those which consist of a plain bowl, usually of earthenware, with the whole flushing machinery located in a special tank. To the former class belong the pan, valve, and plunger closets, and to the latter the hopper closet, which is again divided into the long and the short forms."

According to Wells, the worst form is the pan variety with the valve and plunger types slightly better. The best closet, Wells concluded, was the hopper closet "on account of its extreme simplicity and the great force of its flush." Furthermore, Wells says that "of the hopper variety the short one is the most desirable, since it presents less surface for fouling, and the trap is located in plain sight above the floor. Again, preference should be given to the modification of this closet, known as the

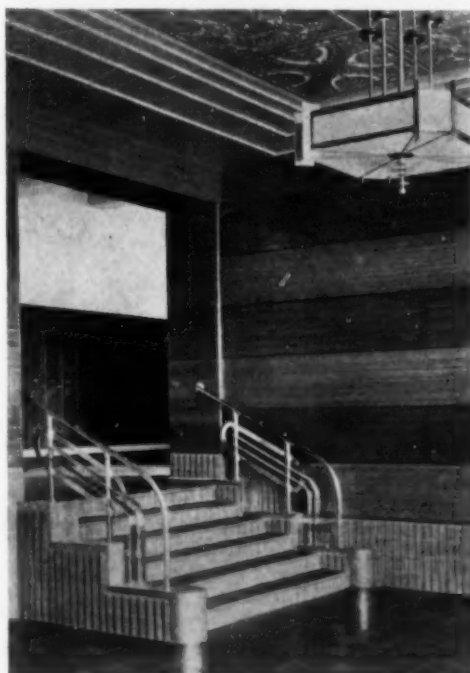
'Wash-out,' which is made of earthenware, in one piece, and the basin so shaped that it holds water and forms a prop against the escape of gases."

Lincoln, in the Lomb prize essay in 1888,²⁷ discussed in more detail the type of slate urinal he advocated four years earlier. He described an apparatus "furnished with a perforated water pipe to keep the front surface of the stone moistened with a sheet of water." "Some urinals," he said, "have a raised platform, in order to define the place to stand on. The better way would be to have a depression which would equally define the position." Lincoln also stated that all materials used in the construction of urinals should be nonporous, and that metalwork of any kind should not be used.

The first standard for the number of toilet provisions was set up by Newsholme in 1889.²⁸ He said there should be five places at urinals for each 100 children, and one seat for every 15 girls, or 25 boys, "the seats being proportionate to the children's stature." Newsholme also stated that the material for urinals should not be any substance that can be written on and water should not be allowed to run continuously over the surface, frequent washing or automatic flush tanks being preferred. He suggested tile for the walls of toilet rooms. Newsholme warned against the use of any type of closet that could be flushed by children.

²³Lincoln, D. F., "School Hygiene," *Seventh Annual Report of the State Board of Health of Indiana for the Fiscal Year Ending October 31, 1888*, pp. 224-5. William B. Burford, Indianapolis, 1889.

²⁴Newsholme, Arthur, *School Hygiene*, pp. 46-53. D. C. Heath and Co., Boston, 1889.



This striking entrance greets pupils of the Washington Junior High School, Long Beach, California. One of the earthquake-proof schools being constructed by the Public Works Administration

Marble's²⁹ list of requirements for toilet facilities for schools included the following: fixtures should not be complicated, they should not be easily clogged, there should be separate seats shutting close at the top, there should be partitions between seats, each closet should have a door raised 3 or 4 inches from the floor, the space beneath the seats should be ventilated by connection with a strong draft, there should be an automatic flush every 5 or 10 minutes, the flush should cleanse the bowl or trough thoroughly, there should be no woodwork beneath nor behind the trough, and the back and partitions of closets should be of slate.

The placing of toilet rooms in school buildings directly over one another on the separate floors was first suggested by Philbrick in 1891.³⁰ Philbrick stated also that toilet fixtures "should be placed near but not against the exterior wall of the building, so as to be lighted and aired by a near window in this wall."

After several years of extreme popularity, the Smead system of dry-closets, previously described, began to lose favor. The State Board of Health of New Hampshire in 1891³¹ stated that "we would unqualifiedly condemn, as contrary to the best principles of sanitation, the so-called 'dry-closets' and wherever sewers can be reached and water-carriage employed, the 'dry-closet' should not be allowed. If the Smead system of heating and ventilation is to be used, it should be divorced from the 'dry-closet' attachment. The theory of the system is admirable, but practically it is faulty and dangerous under some circumstances and conditions." The State Board of Health of Maine in the same year³² also objected to the Smead system because of the possibility of reversal of air currents, and therefore recommended the use of water closets wherever there was an adequate supply of water.

One of the first tasks in the improvement of school facilities was the provision of proper toilets. At first all toilets were outside the main building, but were far from being sanitary. The principles of outside toilet construction proposed by Burrows in 1855 have survived to the present day. The first inside toilets built in 1852 in New York City school buildings were far in advance of general practice. The introduction of water in city school buildings made possible the development of water closets, but at first these were very unsatisfactory both because of their construction and because of inadequate sewage-disposal systems. The dry-closet system was developed

²⁵Lincoln, D. F., "School Architecture," *Forty-Eighth Annual Report of the Board of Education, 1883-84*, pp. 270-1. Wright and Potter Printing Co., Boston, 1885.

²⁶Ibid., pp. 270-1.

²⁷Jefferies, D. W., "Heating and Ventilation of Public School Buildings as Illustrated by the System Introduced into the New High School Building at Chester," *Second Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania, 1886*, pp. 320-4. Edwin K. Meyers, Harrisburg 1887.

²⁸"Plumbing of the West Middle School, Hartford, Conn." *The Sanitary Engineer*, 14:396, September 23, 1886.

²⁹Wells, Frank, "Drainage," *Six Lectures on School Hygiene*, pp. 152-3. Ginn and Co., Boston, 1886.

³⁰Marble, Albert P., *Sanitary Condition for School-houses*, Bulletin No. 3, 1891, U. S. Bureau of Education, p. 39.

³¹Ibid., pp. 45-6.

³²State of New Hampshire, "Portsmouth School Houses," *Tenth Annual Report of the State Board of Health of the State of New Hampshire for the Year Ending October 31, 1891*, p. 51. Ira C. Evans, Concord, 1891.

³³State of Maine, "Privies, Water-Closets and Urinals," *Seventh Annual Report of the State Board of Health of the State of Maine, 1891*, pp. 352-62. Burleigh and Flynt, Augusta, 1892.

The Peter H. Burnett Junior High School, San Jose, California

John J. Donovan, A.I.A., Architect

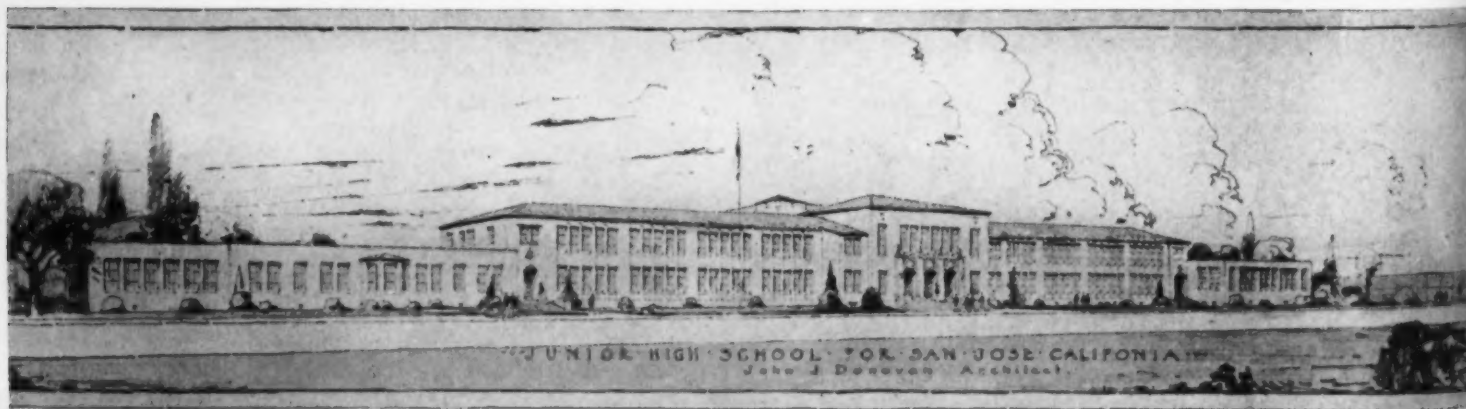
The Peter H. Burnett Junior High School was so named in honor of the first governor of California. He was an outstanding historical figure of the early days of the state. His grandson and greatgrandson are eminent and much-respected attorneys in San Jose, a thriving city of many charms, about fifty miles from San Francisco.

The school building is located in a residential section of the city where the homes house the children of what might well be described as representative of the solid and substantial citizenry of not only California, but the nation as well. San Jose has been particularly blessed with a board of education whose feet are on the ground. The choice of the site was not haphazard, nor was it due to the appeals of momentary enthusiasts hoping to improve the value of their own property or lend importance to a section of the city. The property was purchased out of current funds only after careful research as to location of pupils and foresight relative to future developments of this residential section of the city. In fact, the purchase was made prior to any announcement of the intended erection of a schoolhouse, quietly and effectively, and at a price in keeping with the development of the adjacent property.

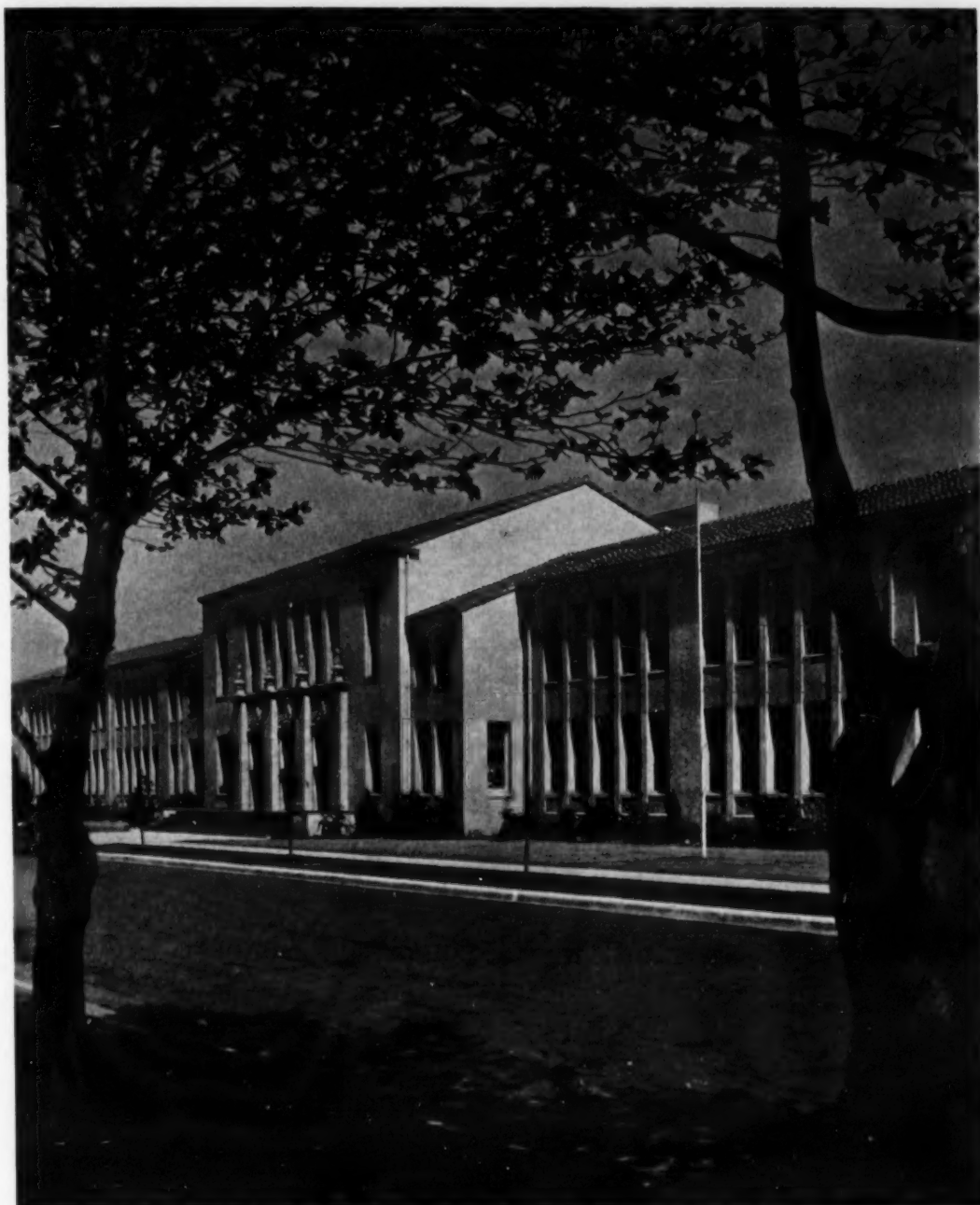
The site consists of ten acres, not quite as much as would have been purchased had the layout of the streets permitted a larger playground. However, a few facts attendant to it may not be amiss. It is located one block back of a main thoroughfare. Its orientation is almost perfect to obtain the most favorable natural lighting for classroom and such other instruction rooms whose location in the scheme or plan is largely governed by their orientation. It is removed from the noise and disturbance of heavy street traffic. It has a 50-



Detail of a Side Entrance, Peter H. Burnett Junior High School, San Jose, California



The Peter H. Burnett Junior High School, San Jose, California. John J. Donovan, A.I.A., Architect, Berkeley, California. Walter L. Bachrodt, Superintendent of Schools—The extreme length of the building and the narrowness of the streets surrounding it make it impossible to give a general idea of the building except through an architect's perspective



Main Entrance and Wings, Peter H. Burnett Junior High School, San Jose, California. John J. Donovan, A.I.A., Architect, Berkeley, California. Walter L. Bachrodt, Superintendent of Schools

foot right-of-way from the main highway of the city, which enables the students to arrive directly at the main entrance, and this right-of-way provided an opportunity for delightful walks and charming planting of colorful shrubs and flowering plants. The plot provides space for a building which will house thirteen hundred junior-high-school students, as well as ample playgrounds for outdoor sports.

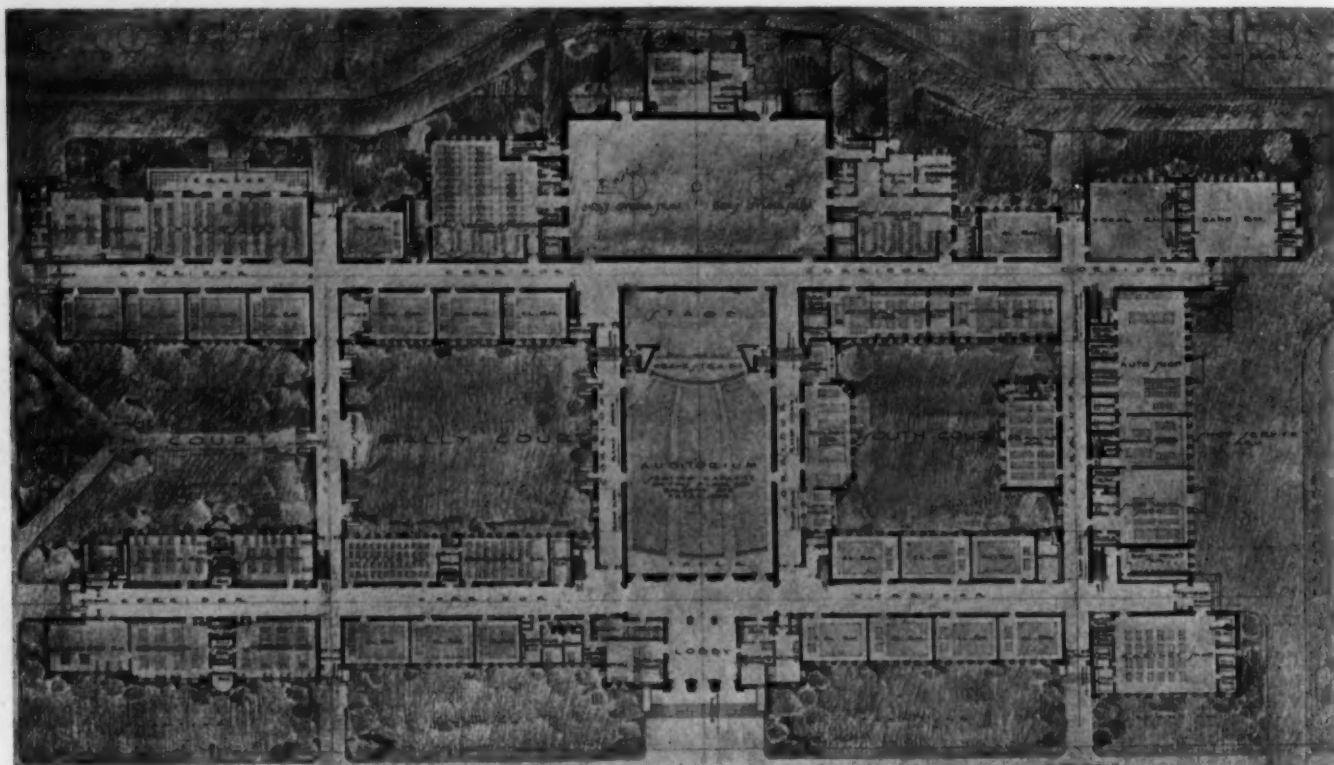
The building, in the main, is two stories in height, constructed of reinforced concrete. Its style — well, I care little about that except to say that it seems to be a natural development of the plan and the spirit that was motivated by the environments, and a little of the atmosphere of California and its historical and architec-

tural traditions. We have so many buildings that are the result of slavish following of this and that style or period of ancient and early modern development, that to me it is as though the architect attempted to fill the pants and boots of a master mind, only to find that neither fitted and were a little too large for comfort.

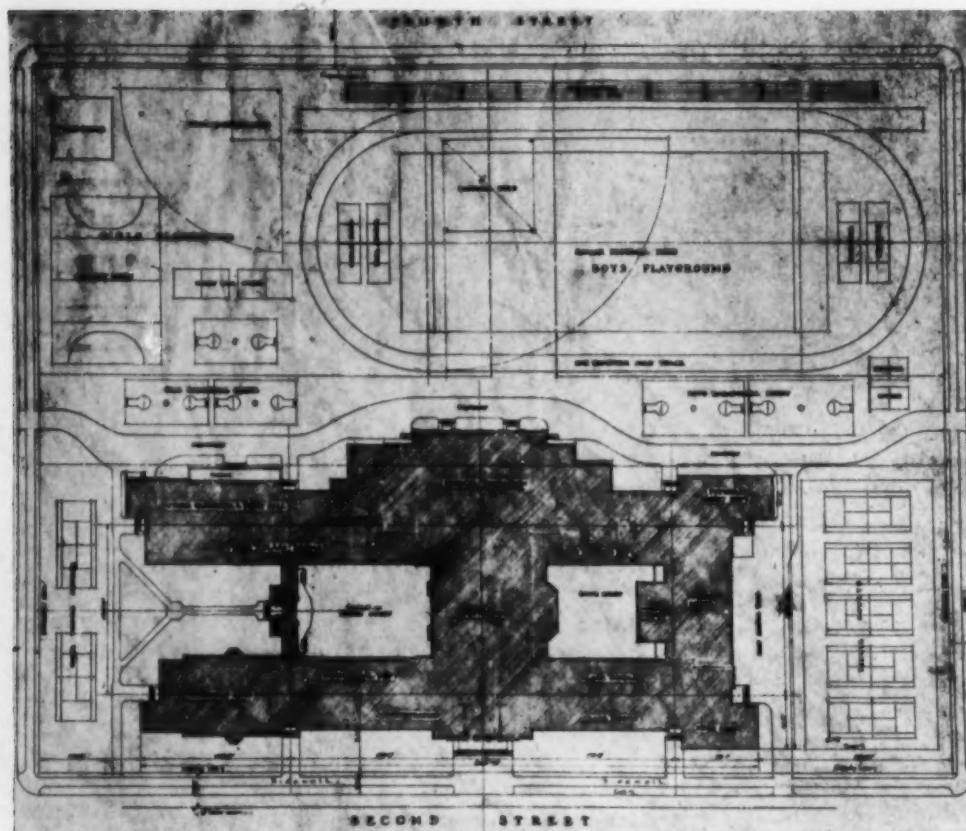
The plan follows a clear statement of the educational problem. This statement was prepared by the principal and the teachers under the direction of the superintendent, Mr. Walter L. Bachrodt. The several departments seem to dovetail nicely into the whole. Observe from the plans the correlation and the thought of student travel, the simple and direct circulation,

both horizontal and vertical. That should always be the test of appropriate planning, but remember this cannot always be accomplished unless the statement of the problem is clearly drawn.

The illustrations indicate the number of instruction rooms and their accessories; however, a few features may be worthy of mention. Note the location of the commercial department to that of the administration; that of the cafeteria for access of supplies and removal of garbage, and for natural light and ventilation; that of the shops and music rooms for isolation from the remainder of the school; that of the science department for indoor and outdoor biological laboratories; that of the library for easy access from the



First Floor Plan, Peter H. Burnett Junior High School, San Jose, California



Plot Plan and Development for the Peter H. Burnett Junior High School, San Jose, California. John J. Donovan, A.J.A., Architect, Berkeley, California

rooms for academic studies; that of the rally court with its outdoor stage, not only for rallies but also for commencement exercises; that of the gymnasium with rela-

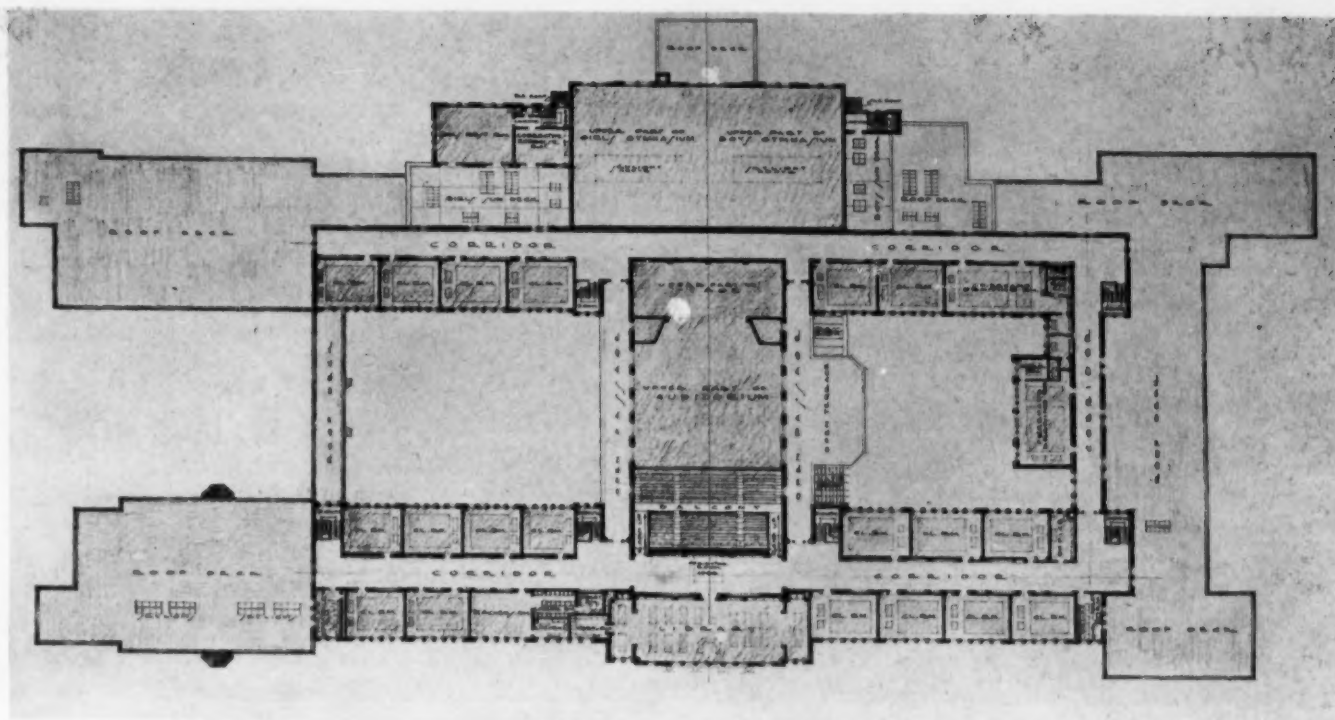
tion to the athletic fields, and the boiler room for isolation and safety.

The library located on the second floor, has a seating capacity of about one hun-

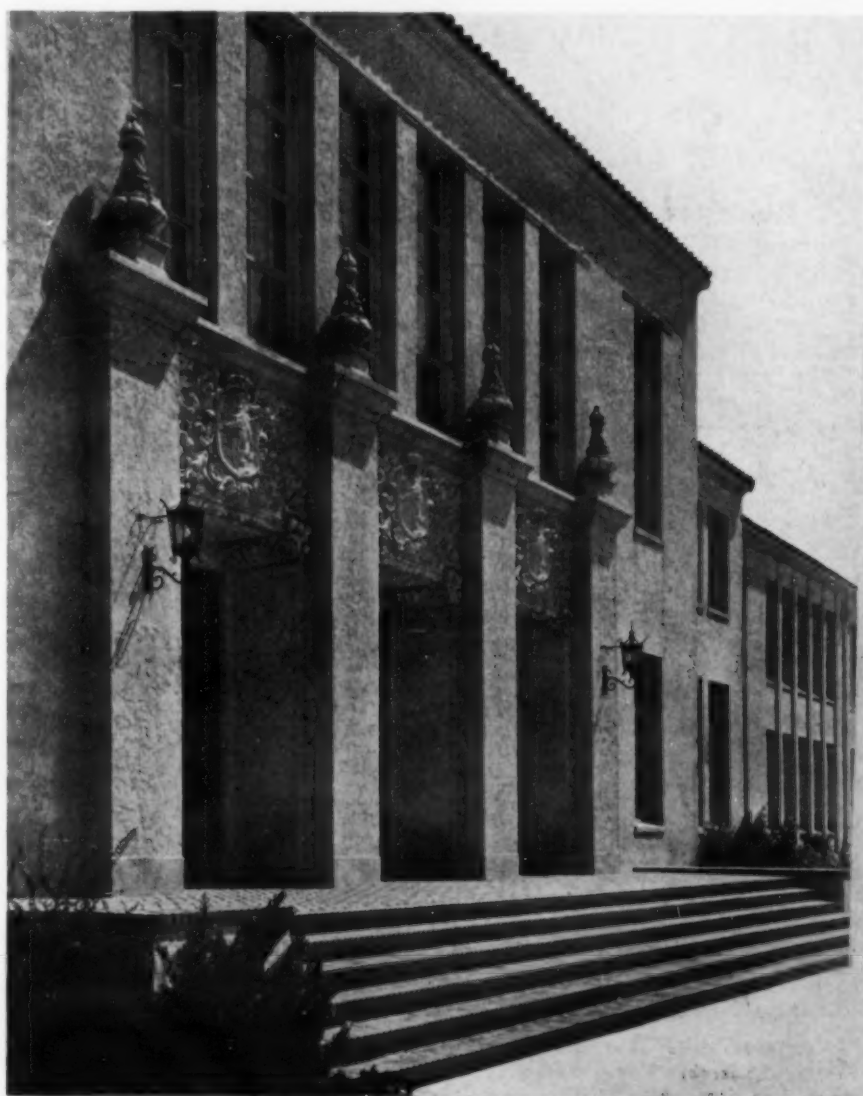
dred and twenty. The ceiling is very much higher than that of the classrooms, which, of course lends spaciousness and dignity to the room. There was a very happy motivating spirit prevailing, which prompted the treatment of this room. All concerned with the planning of the building were desirous that the library should be as inviting to the students as possible so that it might prove a further incentive to active use. The acoustics and decorative treatment add to its attractiveness. The library is located in the heart of the academic section of the school and is easily accessible to the students of this department. Its isolation from both interior and exterior noises and disturbances is conducive to concentration and study. We feel somewhat fortunate in having arrived at a happy solution that is workable, interesting, and very much of an asset to the school. The bookshelf space will hold about sixteen thousand volumes.

Not least of all was consideration given to earthquake resistance, for Californians realize that this unwelcome visitor arrives occasionally and unexpectedly and leaves after raising particular "ned"—so, we have to be prepared. However, to its credit, it should be said that the tremblors have caused a beneficial awakening so that we may build better and finer schools and other buildings.

By the way, I almost forgot something of note and that is, the architecture is not "Moderne" or "Streamline"—which relieves the architect of many explanations and an abundance of apologies.



Second Floor Plan, Peter H. Burnett Junior High School, San Jose, California. John J. Donovan, A.J.A., Architect, Berkeley, California—The building faces southwest so that all the classrooms receive direct sunlight



Detail of Main Entrance, Peter H. Burnett Junior High School, San Jose, California

NURSE TEACHERS IN WATERTOWN, NEW YORK, SCHOOLS

A school health program stands as a challenge to the ingenuity of all sciences concerned with the healthy growth and development of the child. A health program is no longer looked upon as a recreation program, a medical-inspection program, or a mental-hygiene program. No service is too costly if it assures healthier citizens for the future.

In the schools of Watertown, New York, recent accomplishments in the health field reported by Dr. L. W. Heizer, school medical supervisor, have been many. "To the school nurse the promotion of health is a vital and definite program. The nurse helps to co-ordinate school health with the public health of the community and merges her contribution into a co-operative program which aims to raise the mental and physical standards. This work is building not only for the present, but also for the future generations, and means continuous striving to change the present emphasis, which is largely corrective or palliative in nature, to one which is positive and constructive. Each day's program consists in the following: (1) detecting and preventing the spread of contagious diseases; (2) insuring sanitary conditions in the school building; (3) discovering physical and mental defects, and then teaching the child to appreciate the results of the correction of these defects; (4) educating the child in matters of healthy living; (5) instructing the child in matters of healthy living; (6) assisting with health examinations and the giving of careful follow-up service in the homes.

"Measures to prevent smallpox and diphtheria are given annually to pupils. Selected groups are given the tuberculosis skin test and the necessary follow-up work when needed. A very careful check of eyes is made each year, or oftener, as is necessary. A special effort is put forth to obtain from the state department of education the 4A and 2A audiometers, which are special devices for testing ears to determine the actual amount of hearing loss of each individual.

"The following surveys are made yearly in Watertown: (1) defective speech cases; (2) orthopedic conditions; (3) mentally retarded and exceptional pupils; (4) color blindness determined by means of the Ishihara color-vision test.

"None of these measures is compulsory."



General Exterior View, Webster Groves Junior High School, Webster Groves, Missouri. Wm. B. Ittner, Inc., Architects, St. Louis, Missouri

New Junior-High-School Building, Webster Groves, Missouri

Wm. B. Ittner, Inc., Architects. Willard E. Goslin, Superintendent of Schools

The School District of Webster Groves is a residential suburban area of approximately five square miles adjacent to the city of St. Louis. It has a total population of approximately 20,000 people with a student population slightly above 4,000.

A central high school caring for the entire district was established about 1900. The community began to grow quite rapidly early in the 1920's and in 1924 the first unit of a modern central plant was begun. Between 1924 and 1929 four additional units were added. These early units were designed to house about a thousand pupils, and the space was devoted mainly to typical academic classrooms. There was provided, however, an auditorium, a public-library unit, one gymnasium, and a central heating plant planned to care for all future additions. In 1933, construction was begun on a sixth unit designed to house an additional thousand pupils, and it is with that unit that this article is primarily concerned.

Prior to 1933 the district had adopted a seven-year elementary-school program consisting of the kindergarten and six grades. It had also evolved a unified six-year high-school program comprising grades seven to twelve, inclusive, and under one supervisory and administrative setup.

The educational policy and program of the community provided for a maximum of activities. Consequently, in planning this large unit much attention was given to special departments, such as art, music,

dramatics, homemaking, physical education, and recreation. The unit was planned to house mainly the pupils of grades seven, eight, and nine. The special units were planned, however, so as to care for the enrollment of the entire six-year high school. The readers of this article will

doubtless be more interested in these special units than in the more nearly stereotyped classroom development.

The new building, in combination with the present building, will furnish a modern junior-senior high-school plant to provide for a thousand additional pupils.



The music room has an elevated platform for the singers arranged so that each child may see the teacher. The room is acoustically treated so that there is not an excess of sound. The doors and walls are also treated so that there is no disturbance in the corridors or the balance of the building

The building contains the following educational units:

22 Classrooms

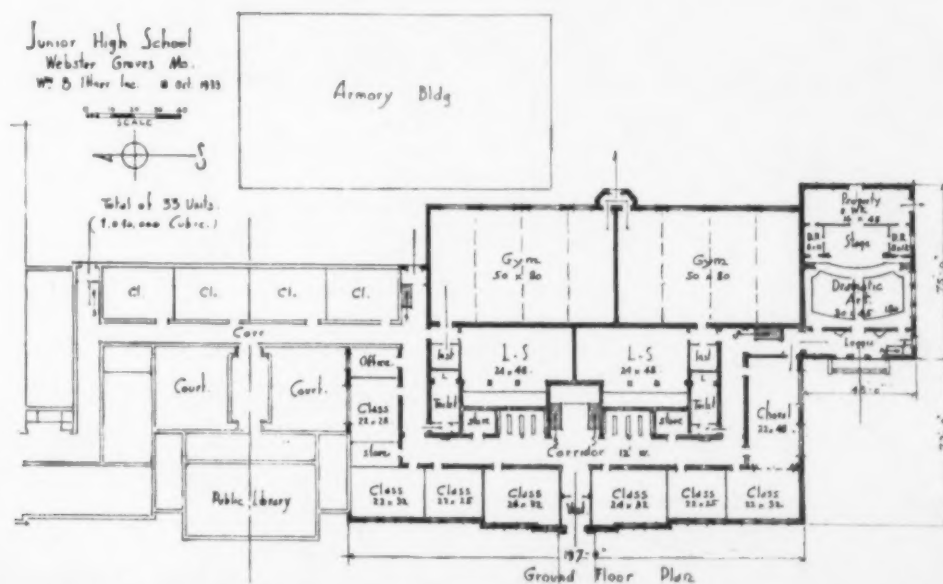
- 2 Gymnasiums, with locker and shower rooms
- 4 Home economics, with lecture room, reception room, dining room, and office
- 1 Dramatic-art room or little theater with stage and dressing rooms
- 1 Choral
- 1 Orchestra
- 1 Band and practice rooms
- 2 Art rooms
- Necessary toilet rooms, storerooms, etc.
- Pupils' lockers recessed in corridors.

The dramatics department was provided with a Little Theater seating 244 people. This is an exquisite little auditorium equipped for the most modern lighting effects and provided with storage space for costumes and equipment, dressing-room space, and a small workshop. The department attempts, of course, to deal with material on the interest level of the children enrolled. Some of the advanced groups over a period of months have presented such plays as "Little Ole Boy," by Bink, "Journey's End," by Sherriff, "Spread Eagle," by Brooks and Lister, "The Taming of the Shrew," by Shakespeare, "Strife," by Galsworthy, "Remember the Day," by Higby and Dunning, and "Growing Pains," by Rauvenol. These productions are offered in complete detail by the dramatics department; through their stage-craft groups they plan and build their own sets, even to articles of furnishings. Each number is presented at several matinee and evening performances and to both student and adult audiences. This Little Theater is used almost continually when not occupied by the dramatics department by faculty and adult groups thus serving a community need.

The music department is housed in two



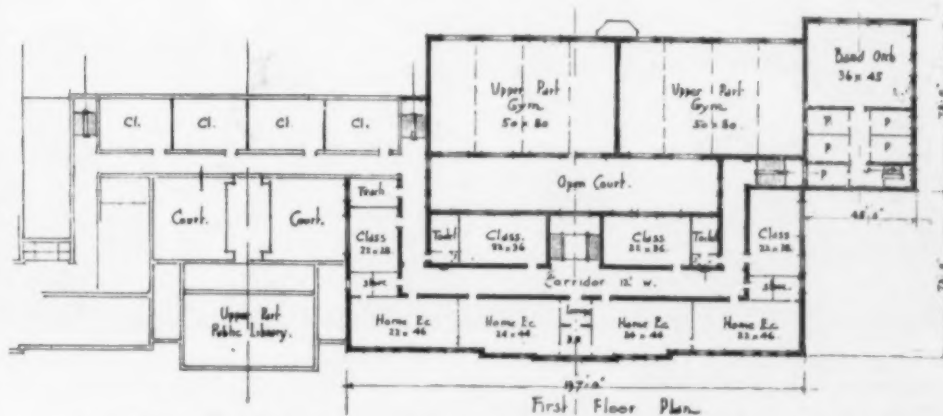
A Study Room, Webster Groves Junior High School, Webster Groves, Missouri.
Wm. B. Ittner, Inc., Architects, St. Louis, Missouri



Ground Floor Plan, Webster Groves Junior High School, Webster Groves, Missouri
Wm. B. Ittner, Inc., Architects, St. Louis, Missouri



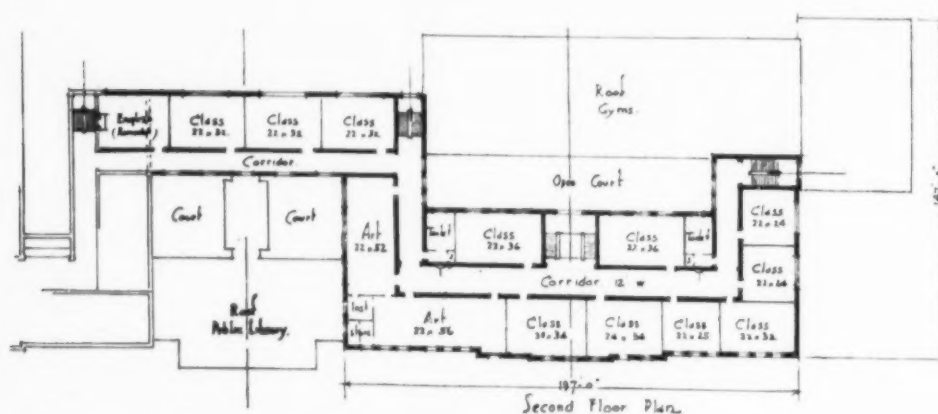
The stairways have terrazzo treads with nonslip inserts. Wainscoting is tile



First Floor Plan, Webster Groves Junior High School, Webster Groves, Missouri



The library serves the immediate neighborhood as a public reading room and library branch



Second Floor Plan, Webster Groves Junior High School, Webster Groves, Missouri



The girls' gymnasium is separated from that used by the boys so that there may be as complete a physical education program for the girls as for the boys. The adjoining armory building is used for the boys' exhibition basketball games



The orchestra room is fitted with large built-in cabinets for storing music and instruments. It is particularly well lighted, and ceiling and walls are acoustically treated

choral rooms, two large instrumental rooms, eight small practice rooms, the supporting office, storage and library spaces. The choral, instrumental, and practice rooms are acoustically treated. The instrumental rooms are provided with large permanent cabinets for the storage of instruments. The choral group has space for the storage of costumes and uniforms and both sections have libraries for music. The practice rooms are small cubicles to care for from one to eight students for special practice work.

The homemaking and art departments are each provided with suites of rooms with features peculiar to their needs. The unit also includes two large gymnasiums which are used through the day for physical-education classwork, in the afternoon for intramural and recreational programs, and in the evening for adult groups.

Other special sections could be mentioned and described in detail, but the ones mentioned here will suffice to give some insight into the building itself and into the educational program and philosophy for which it was designed.

There remains to be built, one final unit to complete this very interesting high-school group. A large gymnasium with audience facilities and a cafeteria will be added about 1942 to replace a temporary structure now in use.

Construction and Finish

The building has a frontage of 197 ft. by extreme depth of 147 ft., facing west on Selma Avenue. The program also includes the enlargement and improvement of the athletic field on approximately 300 ft. of ground fronting on Standish Avenue.

It is a fire-resistive structure with concrete floors, stairs, and composition roof. Steel framing is used for trusses. The exterior walls are of brick on rubble base and cut-stone trim and have concrete foundations. The exterior design is Georgian in character, to harmonize with the present senior high school.

All classrooms, corridor walls, and ceilings are plastered with hard wall plaster. Corridors and stairways have a wainscot of gray vitrified brick. Gymnasiums, lockers, and shower rooms have similar wainscots with brick-finished walls above. Classrooms and corridors have linoleum floors; gymnasium floors are maple. The first-floor corridor and toilets are terrazzo.

The equipment, both fixed and portable, is of types that have been tested in good modern school construction of latest design.

The plumbing includes only the most sanitary fixtures and roughing-in. The heating system is low pressure, steam type of radiation, with window ventilation and exhaust ducts, except the Little Theater, which has fan ventilation; and gymnasiums, locker and shower rooms, which have unit heaters. The building is heated from the heating plant in the senior high school.

The electric wiring is set in rigid conduit, using all devices approved by the National Board of Fire Underwriters.

The building was completed in September, 1935. It has a total cubical content of 1,059,000 cubic feet and cost \$270,105, or 25½ cents a cubic foot.

NEW YORK'S SCHOOL-BUILDING SURVEY

A school-building program, involving an expenditure of \$30,000,000, is being launched by the board of education of New York City. It is to be preceded by a comprehensive survey, to be made by five experts in order to determine upon economies and improvements in structural design to be made over former projects. The cost of the survey will be \$30,000.

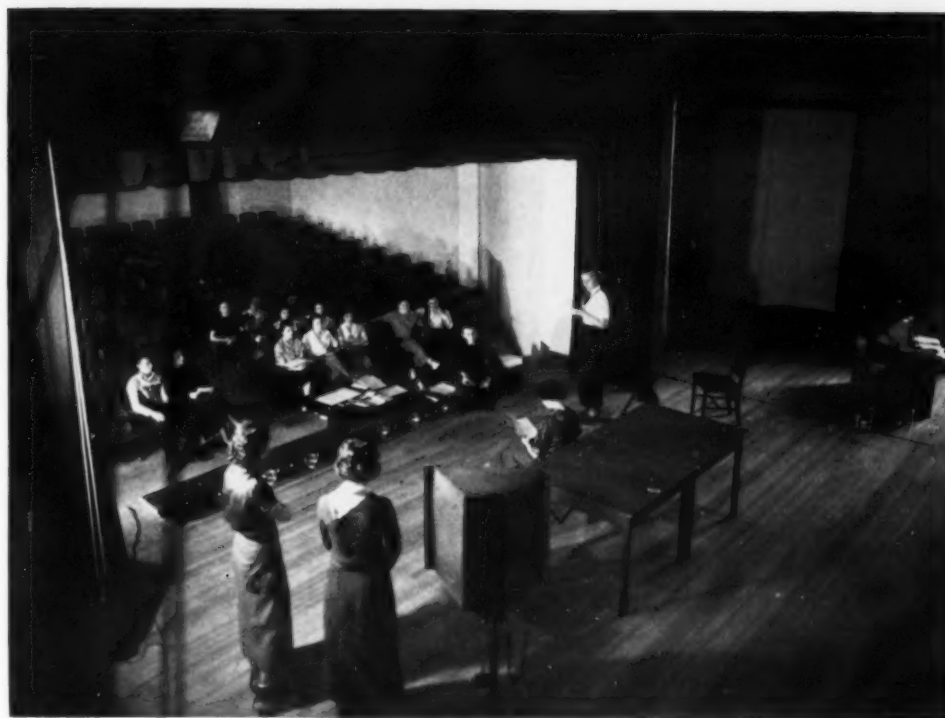
The five experts tentatively chosen are Reginald E. Marsh of Tooker & Marsh; Herbert M. Hathaway of Starrett & Van Vleck of New York City; Ernest Sibley of Litchfield, Conn.; Lawrence J. Lincoln of Hewlett, L. I.; and Walter M. McCormack of Cleveland, Ohio. They are to receive \$3,000 each and the balance of \$15,000 is to be expended in the employment of heating, ventilating, and electrical engineers. The survey is to be completed in six months' time. The experts chosen have had wide experience in the field of school architecture and construction operations.

The building program contemplates the planning and construction of ten new high schools, three additions to existing high schools, fourteen new elementary and junior high schools, and thirteen additions to elementary schools, or in all, forty new buildings. It also includes the purchase and alteration of the Elks Building in Brooklyn for the new headquarters of the board of education.

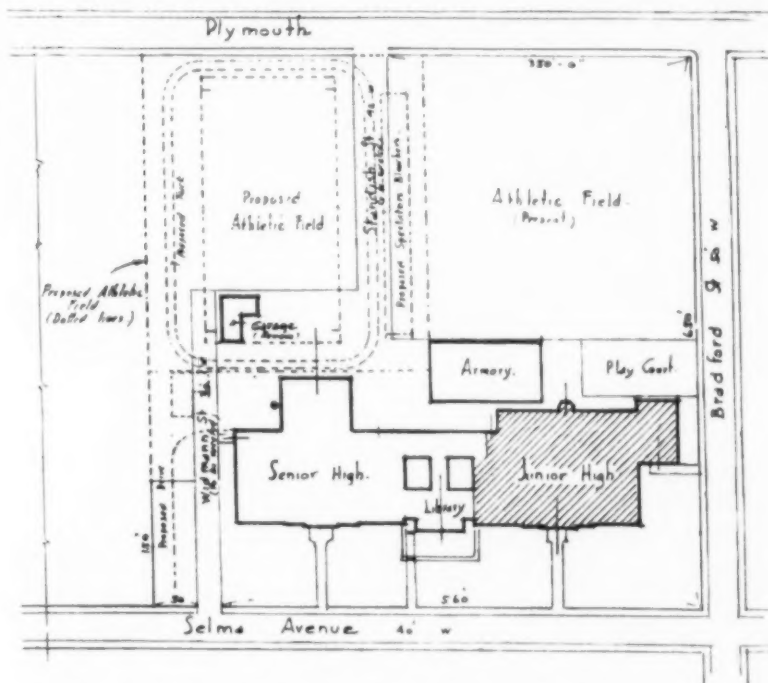
Less Cost Without Loss of Efficiency

The departure of the New York City board of education in prefacing a monster school-building program with a study to be made by experts is significant. It proceeds upon the thought that schoolhousing may be planned and constructed upon a more economical basis without, however, sacrificing the utilitarian phases involved.

The construction operations carried on in the past by the New York City school system have been upon a gigantic scale. The



Rehearsal, Little Theatre Group, Webster Groves Junior High School, Webster Groves, Missouri



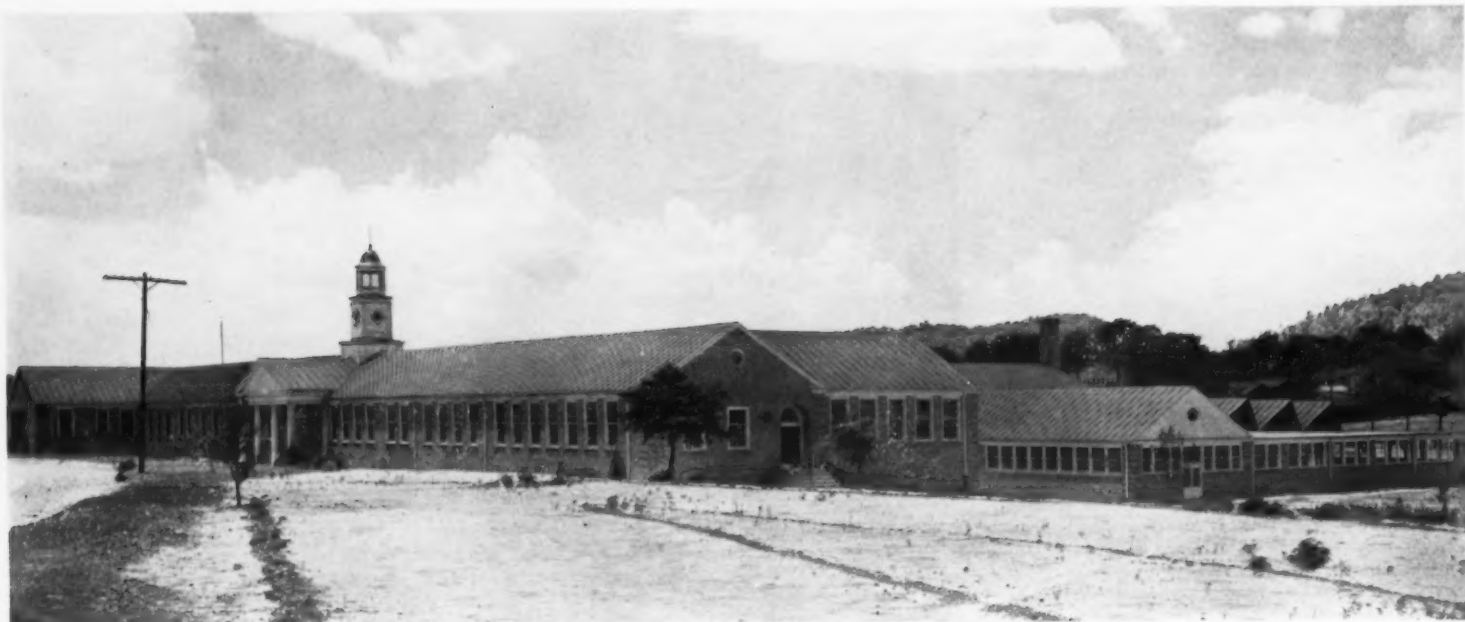
Plot Plan, Webster Groves Junior High School, Webster Groves, Missouri. Wm. B. Ittner, Inc., Architects, St. Louis, Missouri

housing of one million and more pupils and thirty-five thousand teachers has involved a gigantic task. Expansion and rehabilitation have been the order of the day. The accumulated experience of the board's department of school architecture will unquestionably serve well in the future, but it also remains that in the construction field, a new day offers new problems and new approaches for their solution.

The board of education at the outset has decreed that a so-called standardization of plans, namely, the dress-pattern type of

school, will not be permitted. It is recognized that every school site, every neighborhood, and every school constituency has its own peculiarities and necessities which must be met in its own type of structure.

"We desire a dignified and graceful exterior," said Mr. Ellsworth B. Buck, Richmond, member of the board of education. "We want the structure to look like a schoolhouse, to serve in a maximum degree the purposes of the school, and to contribute something to the appearance of the neighborhood."



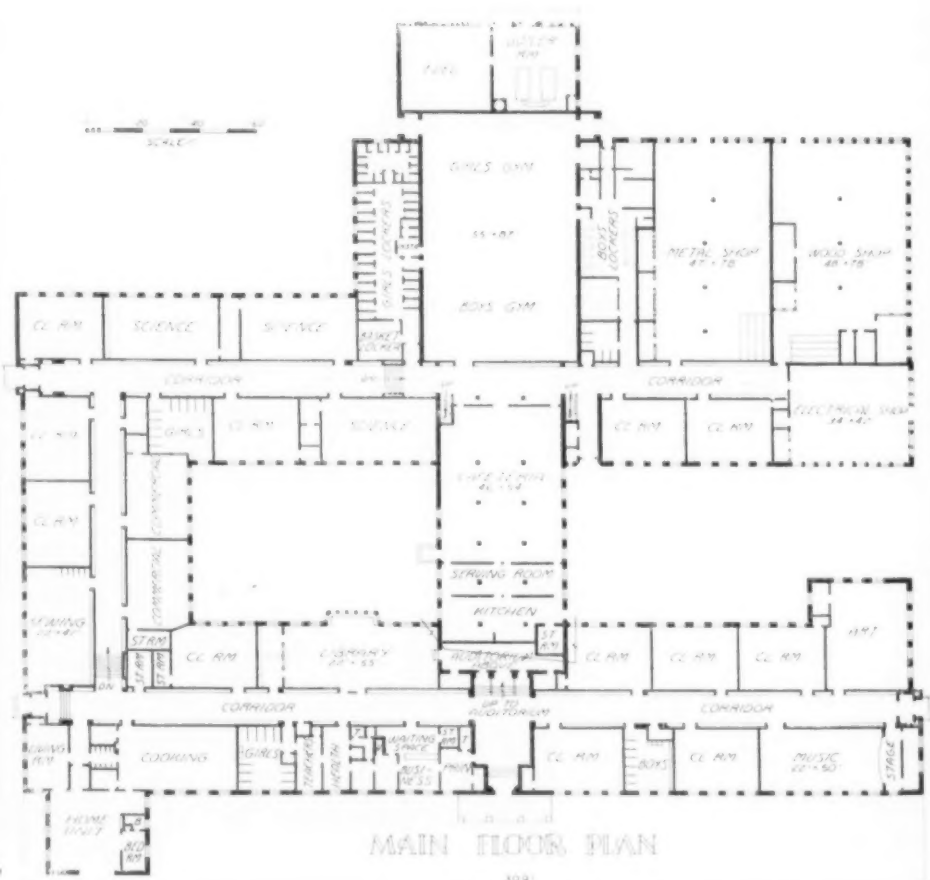
*General View, Christenberry Junior High School, Knoxville, Tennessee.
Barber & McMurry, Architects, Knoxville, Tennessee*

Knoxville School Demonstrates Economy¹

School boards rightly feel that school buildings should be imposing—but should not impose upon the pocketbooks of the taxpayers—therefore economy in a true sense is the decided practice in planning new educational buildings. The newest school in Knoxville, Tenn., the Christenberry Junior High School, is an example of this newly sought economy—it combines low first cost with careful adaptation to educational program. Architecturally, it is colonial in detail, but its chief attractiveness arises from its well-chosen materials and the clear-cut expression of its educational function. It cost only 16.8 cents per cubic foot, or a total of \$208,000, and yet it is just as impressive and pleasing and serves its purpose as well as a schoolhouse that might cost double that amount.

Architects Barber and McMurry, of Knoxville, planned the school. A glance at the airplane picture or at the floor plans will indicate that the general arrangement is exceedingly simple and straightforward. There is no waste space—the plan is along simple, straight lines—the corridors are just the size that they should be, and there are no "odd" spaces at the ends of halls. Every inch of the structure is either an instructional area or a necessary passageway. The general plan has been developed on the basis of an educational statement prepared by the superintendent of schools, Dr. Harry L. Clark, and the principal, Mr. Wilson New.

The plan involves primarily the arrangement of the academic department in the front wing of the building, with a library and the administrative offices as the two focal centers of activity; the commercial department, the laboratories, and the other special departments in a connecting side wing; and the work-



*Main Floor Plan, Christenberry Junior High School, Knoxville, Tenn.
Barber & McMurry, Architects, Knoxville, Tennessee*

¹Based upon an interview given by Architect McMurry to Ruth Peck McLeod.

rooms, shops, and gymnasium at the rear. The auditorium forms a central connecting link between the front and the back wings; the cafeteria is immediately under the auditorium.

Objectives of plan and construction almost as important as instructional service have been the health and safety of pupils and teachers.

Economy the First Objective

The airplane picture of the building shows very well that the building occupies a great amount of ground. The reader may wonder why so much foundation and so much roof do not increase the expense. Mr. McMurry explains that the additional roof and foundation costs are less than would be the cost of fireproofing an entire structure of two or more stories—that materials of greater weight, thickness, and strength would have been necessary if the plan were not all on one floor. Here not economy but the safety of the children has been paramount in the mind of the architect, for in case of a fire, the children can march into the fireproof corridors and thence out of fourteen exits; or, they may step immediately out of windows from any classroom—with perfect safety.

There are no stairways in the Christenberry School, except a few steps in the corridors which accommodate the floor levels to the slope of the lot. These few sets of steps are all at well-lighted points and extend the full width of the corridor; they have such wide treads and such slight risers that the pupils are scarcely aware of them. The arrangement is further advantageous in that it has made possible the placing of the auditorium above the cafeteria.

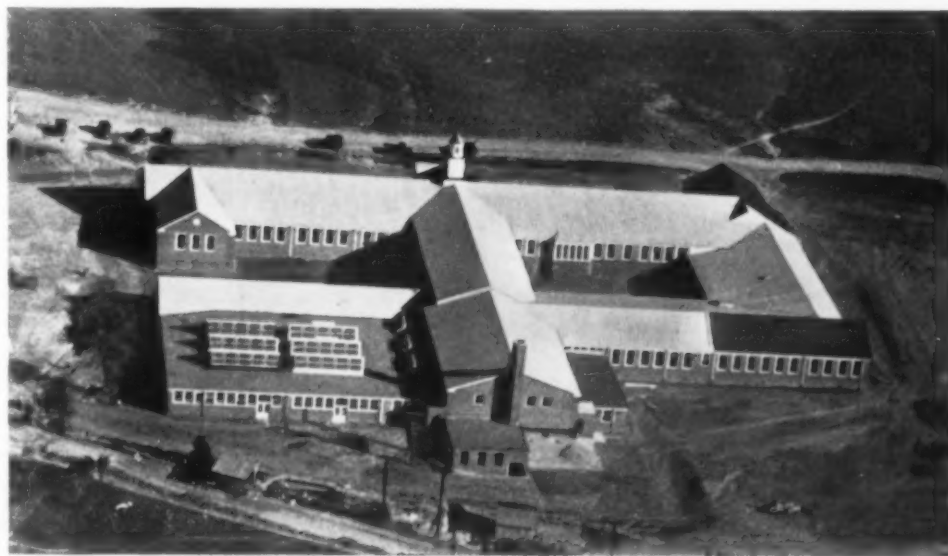
The architects have been entirely practical in their planning. Every feature that might call for unnecessary expense has been eliminated—not a dollar has been spent without considering the value to be received from it. Such economical planning calls for ingenuity and hard work on the part of the architects and must necessarily be backed by long experience in the planning and construction of school buildings.

A genuinely effective school building which is exceedingly low in cost can be evolved only by applying the lessons gained from varied and long experience in school planning and careful observation of the results achieved. Mere planning for economy of space is not sufficient; it must be combined with the well-balanced selection of economical materials. In the Christenberry School, simple inexpensive materials available locally were chosen for every item. Other cuts in cost were made possible through the use of skeleton or exposed construction where this would serve the purpose quite as well as a concealing finish. Thus, the exposed steel trusses in the auditorium and the gymnasium display sturdy, practical, and unpretentious design which does not apologize but which has been handled to harmonize with the use of the rooms. So too, the shops have simple concrete floors, painted brick walls, and sawtooth skylights, with the framing members exposed and painted. This shop construction duplicates the industrial shops where the students may later work. The lower cost type of construction thus provides "atmosphere" as well as saves money. The skylights are typical of the best local shops, and the arrangement provides ideal north light without glare or disturbing shadows. The light in the drafting room particularly is effective.

While the building costs have been curtailed wherever possible, the welfare of the children has been completely kept in mind. The light-



Front Entrance, Christenberry Junior High School, Knoxville, Tennessee



Airplane View, Christenberry Junior High School, Knoxville, Tennessee. Barber & McMurry, Architects, Knoxville, Tennessee—Saw-toothed skylights can be seen plainly

ing is especially effective. There is ample daylight on all desks in the farthest corners of the rooms.

Each room and each group of rooms have been especially arranged for their immediate instructional uses. And the rooms have been generously planned so that they will be flexible in use as the educational program is modified and instructional methods are adjusted to meet new conditions. The music room has a platform for instructional and recitation purposes; it is well adapted to public speech classes. The art room has adequate cupboards and closet space for storage and is fitted with a sink and running water.

The science rooms have water and sewer connections, electrical outlets, plenty of storage space for supplies and open as well as closed glass cases for instruments, chemicals, and demonstration materials.

The library is extremely well lighted and pleasantly finished. Standard library furniture and open bookshelving make the room attractive for reading and study. The sewing rooms have a liberal supply of lockers to hold working materials. The cooking laboratory is provided with gas and electric stoves, automatic refrigerators, and modern plumbing equipment. The high standard of equipment will prove an inspiration to any girl for develop-

ing her own home kitchen. The "practice house" includes a combination living and dining room, a breakfast nook, a nursery, and a kitchen.

Not only are the special departmental rooms and the academic classrooms ideally fitted for the work carried on, but the large rooms, particularly the auditorium and the gymnasium, are carefully planned. The auditorium has a stage adequate for school theatricals and has adjoining it, dressing rooms and space for the storage of scenery; a motion-picture booth is provided. The entire auditorium, as well as the entrance lobby, are fully fireproof. The room has been planned to serve not only the school but also the immediate community. The careful forethought of the architect has arranged for toilets, wardrobes, and other service spaces adjoining the auditorium so that the balance of the school may be shut off when the auditorium is used for public gatherings.

The cafeteria is spacious—the serving counters are located in a room adjoining the kitchen so that the dining room may be used for study purposes before and after the lunch period. The ceilings are soundproofed so that the noise of the dishes will not disturb the classrooms. The fireproofed corridors help to deaden the sounds throughout the struc-

ture. For that reason the singing in the music room, the recitation of the numerous classes, can scarcely be heard in adjacent rooms.

There are two large adjoining gymnasiums, one for each sex. Upon special occasions these large rooms can be thrown together as they are separated only by huge sliding doors. Each of the gymnasiums has showers, toilet facilities, and dressing rooms. There are baskets and lockers to hold the pupils' belongings. Both the boys' and girls' quarters have direct entrances to the playground, and it is a real playground for the school site occupies twelve acres.

Neatness and compactness is the general effect of the building. This is especially noticeable in the corridors which are entirely without projections or interruptions. The lockers are recessed in the walls and the doors of the classrooms are fitted with glass panels.

Upon a recent visit to the school, the principal, Mr. Wilson, had a real reason for his pride and enthusiasm, as he pointed out its numerous advantages. And so it seems that Barber and McMurry have not only pleased the principal and the faculty and the pupils, but the taxpayers as well, when they built the Christenberry School at such a moderate cost.

The Past Three Years in Schoolhouse Construction¹

S. L. Smith²

It was found that, in the years 1931-32 and 1932-33, progress in erecting new buildings and improving and beautifying existing school plants had slowed down almost to a stop, due to economic conditions which resulted in lean school budgets. But in the winter of 1933-34, the building spirit was revived through the stimulation of the CWA program, which contributed approximately \$65,000,000 toward the erection of some new small schools and the improvement of more than 40,000 existing school plants, according to reports received from the state departments of education in 1934.

This program was followed by the ERA from the spring of 1934 to July, 1935, under which more than 1,500 new schoolhouses were constructed, and 31,418 existing plants enlarged, improved, and beautified—a total of 32,948 school plants—through government grants for labor and material amounting to approximately \$66,000,000. Since the chief aim of these two emergency programs was to furnish immediate work for the millions of unemployed, it was difficult for school officials and administrators to find time to develop long-range building plans.

Still, this revival of interest in school buildings, through the co-operation of school officials and government administrators, resulted in the erection or the improvement and beautification of 75,000 school plants under the CWA and the ERA, from the fall of 1933 to July, 1935, at a cost of more than \$150,000,000, including approximately \$131,000,000 in federal grants for labor and material.

Manner and Extent of Federal Aid

Under the PWA program of the N.I.R.A., beginning in 1933, the government agreed to give a loan of 70 per cent, and a grant of

30 per cent, toward the construction of school buildings. But due to the low per cent in grants and the inability of rural sections to provide the additional 70 per cent, a rather large proportion of the PWA projects were located in urban centers. Under the second PWA program, beginning around July, 1935, which provides for loans of 55 per cent, and grants of 45 per cent, of the total cost of school plants, the construction program has been considerably accelerated, according to letters received from 48 PWA administrators in September, 1936.

The summaries from the letters and reports, given by states, show that 2,944 school-building projects were approved under the PWA program the past year, estimated to cost \$312,132,975. Of this total, \$164,300,639, were government allotments—\$39,193,746 loans and \$125,106,893 direct grants. The balance of \$147,832,336 is being provided by state and local school officials. Of the 2,944 building projects approved, mainly the past year, administrators from forty states report that 813 were completed to September, 1936, at a total cost of \$77,026,065, and that the remainder will be completed during this school year.

According to a report of the Federal Emergency Administration of Public Works, July 1, 1936, the total number of school buildings approved under the first and second PWA programs was 5,133 (4,115 new buildings and 1,018 existing plants improved and beautified), at an estimated cost of almost a half billion dollars. These approved building projects are

located in 1,457 of the 3,071 counties in the United States, and will have a pupil capacity of 1,202,160 when completed. In Pennsylvania, the \$36,000,000 worth of PWA school-building projects are located in 60 of the 67 counties. New classroom facilities are being provided under this program for one pupil in every 25 enrolled in elementary schools, high schools, and colleges in the United States.

State and Local Financing

School-building projects comprised 38 per cent of the total number, and 22 per cent of the cost, of all PWA nonfederal projects as of July 1, 1936. It has been carefully estimated that 70 per cent of all new school buildings constructed in the states the past three years, were financed through PWA allotments, at an estimated cost of \$461,923,907. Of this amount, \$263,712,580 was from government allotments (\$174,576,261 direct grants and \$89,136,319). The remainder of approximately \$200,000,000 is being provided by state and local school boards for the more than 5,000 buildings, which are either completed or due to be completed during the school year 1936-37.

Letters were sent to the 48 state administrators of the Works Progress Administration to obtain up-to-date information on the extent of the school-building program of the WPA. Reports from 38 state administrators show that a total of 13,441 school-building projects were approved the past year, estimated to cost \$115,699,187, which includes \$94,227,110 in direct grants. Of this number, 3,093 were reported completed to September, 1936, at a total cost of \$17,694,954, including \$14,055,439 in direct grants. While under the WPA program a great many small schools have been constructed, its chief work has

¹A paper presented at the meeting of the National Council on Schoolhouse Construction, at Austin, Texas, October 6, 1936.

²Director, Southern Office, Julius Rosenwald Fund, Nashville, Tennessee.

San Francisco Completes Sixty New School Buildings

George G. Mullany

Nine new fireproof public-school buildings — five elementary, two special schools, one junior and one senior high school — costing approximately \$3,000,000, have been or will be occupied by the San Francisco school system during the 1936-37 school term.

In addition, there are in course of construction the shop building at George Washington High School costing approximately \$219,000, a like addition to Marina Junior High School costing approximately \$233,808, an eight-room addition to the Aptos Junior High School to cost approximately \$99,304, an auditorium at the Daniel Webster Elementary School costing approximately \$40,000, and a girls' gymnasium at historic Polytechnic High School to cost \$112,388.

Approved by the San Francisco board of education and now in the lap of the Works Progress Administration at Washington for approval is another program involving the erection of buildings for the San Francisco Junior College at Balboa

Park, a new gymnasium for Lowell High School, an auditorium for the Portola Junior High School, an addition to the Franklin Elementary School, and the George Washington High School gymnasium and development of the athletic field. The total cost of this program will be \$1,160,175, 45 per cent of which will be paid by the Federal Government.

Completion of this program will mark another step toward the realization of the building schedule of the board of education — a program that has resulted in the erection of 60 new fireproof schools since 1920 at a cost of approximately \$26,000,000.

The new George Washington Senior High School is located in the northwestern section of San Francisco known as the Park-Presidio district and represents an addition to the high-school plant bringing the total number of buildings in the secondary division to eight. The structure is an answer to the 25-year-old prayer of the residents of that district for a high school

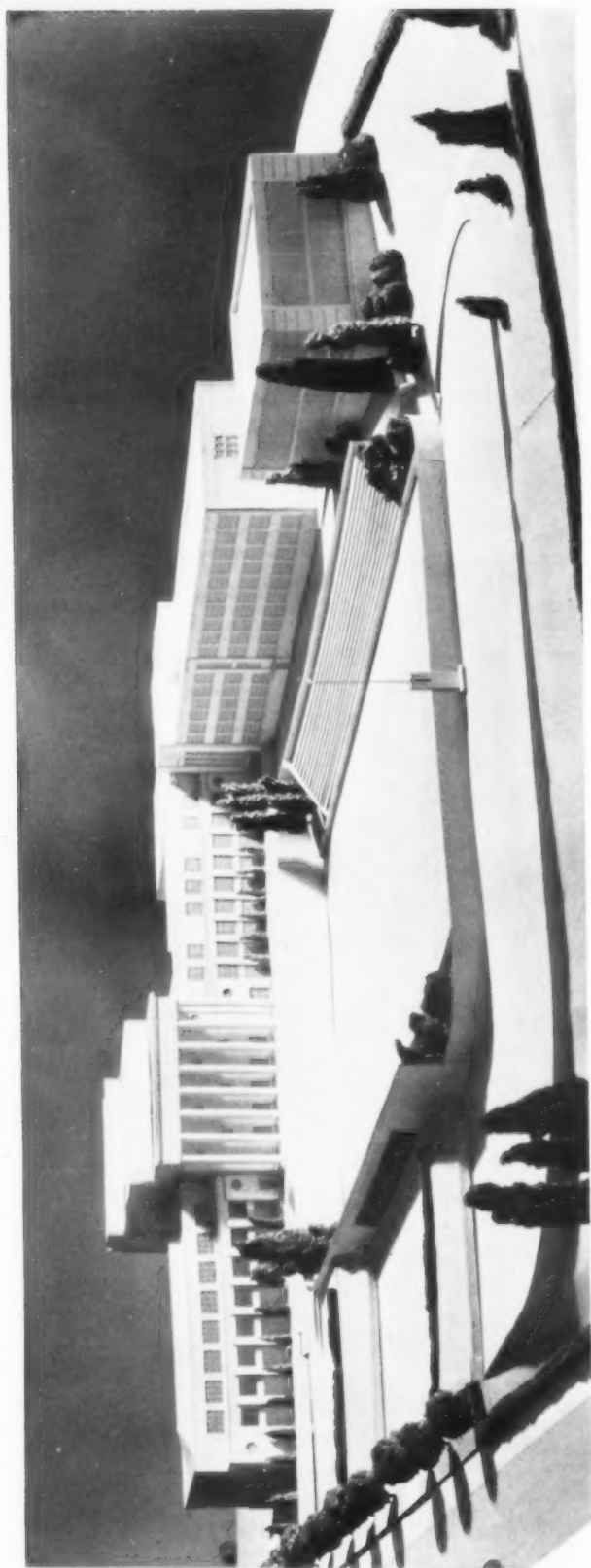
to meet the educational requirements of that area. In addition it relieves overcrowding in other sections of the city.

The new Marina Junior High School is located in the Marina district, on the fringe of San Francisco Bay, in full view of the Golden Gate Bridge now in course of construction, and in a district where the Panama Pacific International Exposition was once held. The entire area is now covered with modern homes, on the edge of which is located the Yacht Harbor and the St. Francis Yacht Club. It represents the tenth junior high school in the city and is part of a well-rounded program to realize the 6-3-3 plan of education which was set down as a basic policy by the board in 1923.

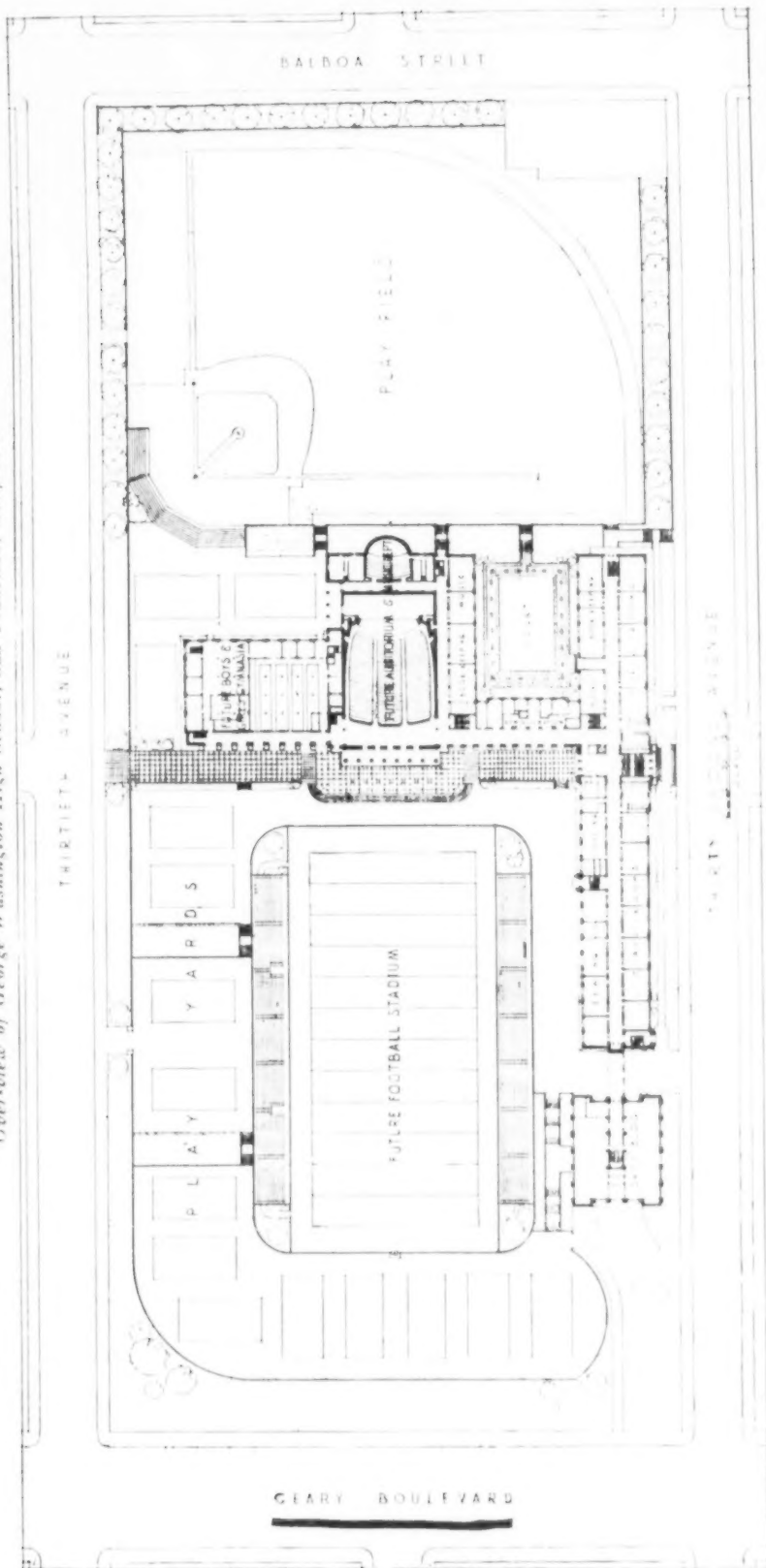
For many years classes in trade and industrial occupations have been developed through night classes at the Humboldt Evening Technical School located in the old Agassiz building, an abandoned elementary-school structure erected in 1892. The new Agassiz Trade School now in



View of the New George Washington High School, San Francisco, California



Over-view of George Washington High School, San Francisco, California



Plans of Complete Project, George Washington High School, San Francisco, California, J. R. Miller and T. L. Pfleger, Architects, San Francisco, California

course of construction in the central Mission district, represents a further development in this field in San Francisco, for it is being erected with the idea of providing day classes for pupils who desire to learn the rudiments of a trade as well as aiding adult citizens employed in industry to improve themselves in their specialized lines by night study.

The five elementary-school buildings,

Francis Scott Key, Lawton, Glen Park, Visitation Valley, and Patrick Henry, replace old wooden buildings which have been in service for many years.

The board of education wisely approved kindergarten and auditoriums as part of the original plans for the five elementary schools and for shops and auditoriums in the George Washington and Marina junior high schools. Completion of all units was

delayed because of lack of funds and a desire to make academic unit replacements in every location proposed in the bond issue of 1934. However, as has been noted, erection of the shops building is already under way at George Washington High and Marina Junior High, as a result of careful financing and aid from the Federal Government.

Ground was broken for the new Sun-

shine Health School on the new site, Florida Street between 25th and 26th Streets, on Sunday, November 10, 1935, before a group of distinguished citizens interested in the welfare of crippled children and those inclined toward ill health.

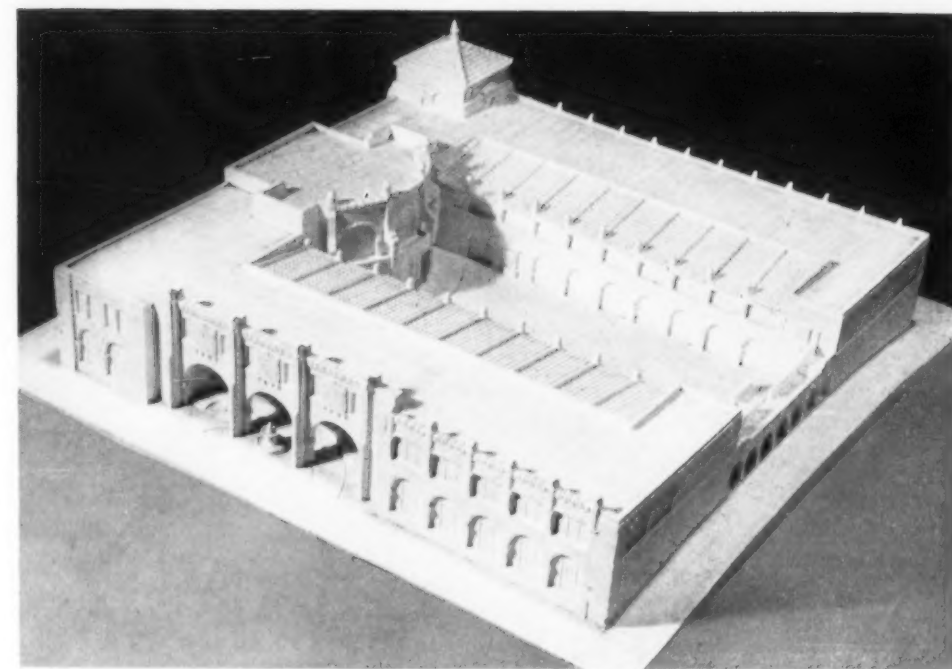
The completed building, which represents an investment of \$300,000, will house the children of the Sunshine School for Crippled Children and the Buena Vista Health School, now separate buildings in the Mission district. The consolidation was recommended by a committee of distinguished physicians and educators appointed by the superintendent.

Inasmuch as the decision to consolidate these two schools was the subject of criticism, it should be recorded that the board of education, the County Medical Society, the director of public health, and the County Grand Jury strongly supported the findings of the original committee. The report of the educational committee of the County Grand Jury to that body reviews the history of the plans for consolidation and also sets forth the objections of the protestants together with its recommendations.

The idea of a consolidated health school is no innovation. Other cities having special schools for all types of handicaps are: St. Louis, Cleveland, Boston, Des Moines, Toledo, Baltimore, Detroit, Indianapolis.

The new Sunshine School under construction in San Francisco is modeled after a school in Des Moines, Iowa, which teaches the deaf, the crippled, and those inclined toward ill health, all under one roof.

A health school by way of definition is an institution catering to a special group



General View of the Sunshine School for Crippled Children, San Francisco, California, to be opened in January, 1937

of cases which are not subjectively ill, and which cannot be judged from the medical point of view as entirely well. It is an institution dealing with children presenting signs of diathesis or tendency to various types of disease or convalescence from a disease but not suffering as yet from any active disease itself. It is, therefore, a school of prevention rather than cure.

The argument has been put forth that children of the Sunshine School should not mingle with normal children because the

sight of normal children distresses them and makes them aware of their handicaps. This statement does not take into account the fact that the Sunshine School is an elementary school and children are graduated from the school each year to attend junior and senior high schools.

It will therefore be seen that the Sunshine is a steppingstone to a regular junior or senior high school. The Buena Vista Health School objective is identical.

San Francisco is one of the few cities in



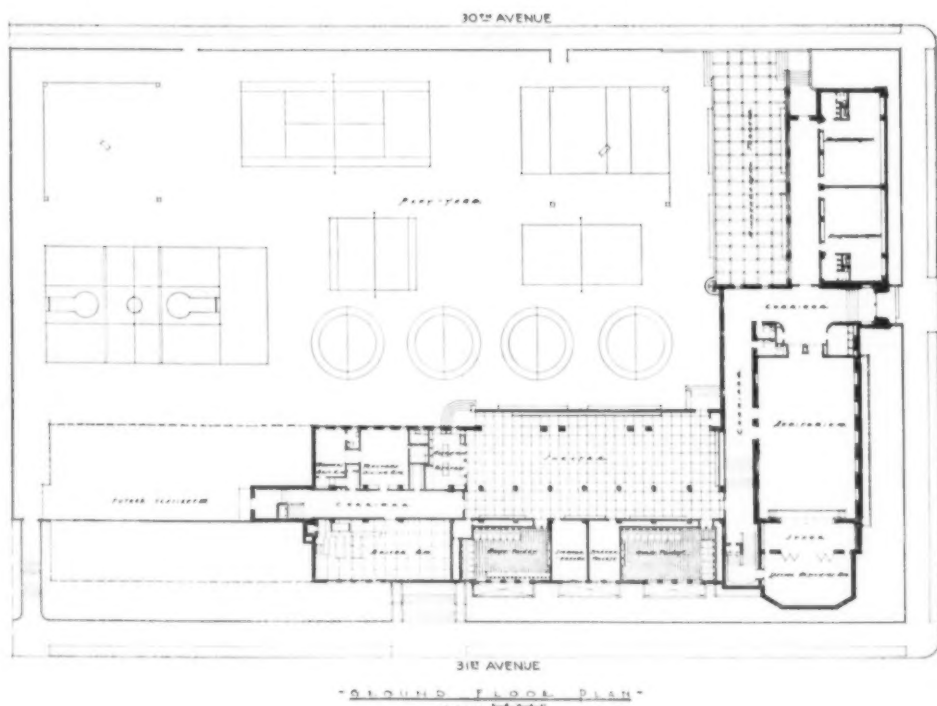
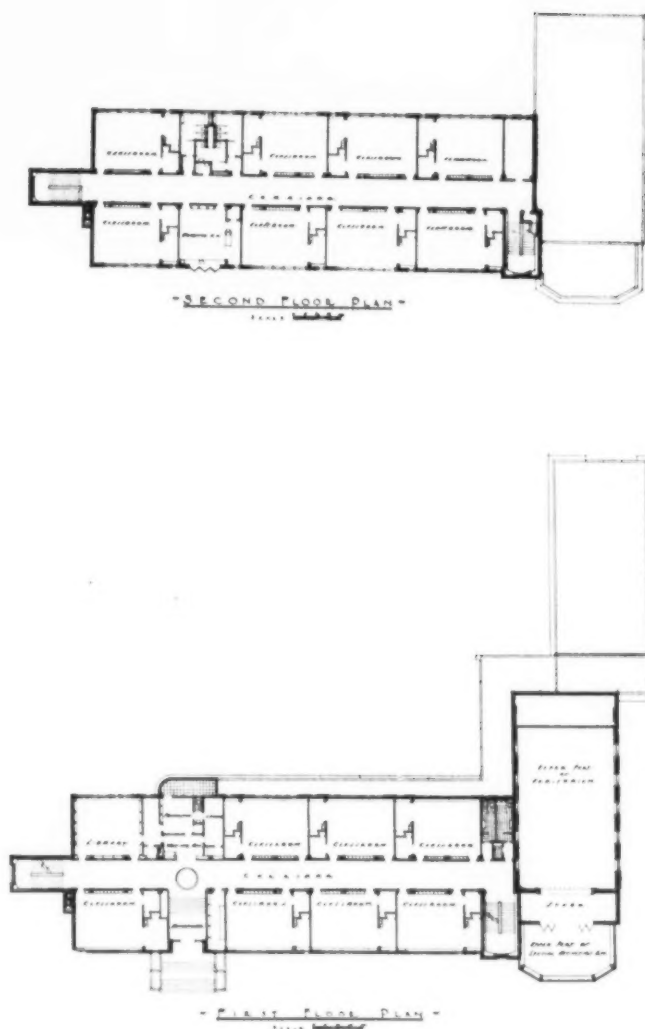
Floor Plans, New Sunshine School, San Francisco, California



*Front Entrance, Lawton Elementary School,
San Francisco, California*

the United States offering special educational facilities to the less fortunate children—those whose bodies are crippled, and those whose weak bodies must absorb the health-giving rays of the sun. The former are cared for in the Sunshine School, which came into existence through the philanthropy of the San Francisco Rotary Club and which was taken over by the San Francisco board of education in January, 1926. The children whose bodies are traps for the hundreds of diseases easily thrown off by normal persons are cared for in the Buena Vista School, where effort is made to strengthen their frail frames and every precaution is taken to protect them from the dangers of disease present everywhere.

The New Sunshine School Building occupies the entire area of a lot 200 by 195 feet. The school with all its modern devices represents a distinct economy in operation, for both schools are now housed under one roof; the Sunshine School for those physically handicapped being removed from its present location at Dolores and Dorland Streets to occupy the first floor, and the Buena Vista Health School, for those inclined toward ill health, moved from Eighteenth and Bryant Streets to occupy the second floor. Each group has its own separate entrance at each street frontage.



*Floor Plans, New Lawton Elementary School, San Francisco, California.
Dodge A. Riedy and Chas. E. J. Rogers, Architects, San Francisco, California*

The High-School Cafeteria

Ralph C. Llewellyn, A.I.A., of Jos. C. Llewellyn Co., Architects

The cafeteria has become a very important adjunct of the modern high school. The tendency has been for the schools to draw their pupils from greater and greater distances so that it is impracticable for all students to go home to lunch even if the program is arranged with a noon hour for this purpose. It probably will not be disputed that it is desirable for the pupils to be provided with wholesome warm lunches, and this is what the cafeteria aims to supply. Even if the pupil carries his lunch, a cafeteria allows him to supplement it with a warm soup or drink at a low cost. We believe in the majority of cases the programs are arranged to run continuously from the opening to the closing of school, and students are assigned so that consecutive periods are available for lunch for different groups of students. As many as three or four lunch periods can be arranged, and this reduces the congestion and allows a lunchroom of a given size to take care of many more pupils.

Requirements for new high schools at the present time, at least in cities of any

size, nearly always include a cafeteria or lunchroom. These requirements, of course, differ as to size and equipment to conform with the size of the school and the number of pupils to be accommodated. There is also quite a variation in the number of accessory rooms, arrangement of serving counters, dishwashing facilities, storerooms, refrigerators, faculty dining room, and so forth. Experience seems to dictate that one serving counter can take care of about two hundred sittings in the dining room. In other words, by the time the two hundredth pupil has passed through the counter, selected his meal, and obtained his check, the first pupil will have finished his lunch and left the dining room. It is therefore necessary to have additional serving counters for dining rooms seating many more than 200 at one time.

To illustrate the cafeteria as it may be found in recent schools, we have selected two examples from our more recent buildings. One of these is comparatively simply done and is for a capacity of about 200 pupils at one sitting. The other is in a

larger school; the dining room has a possible capacity of 800, although at present it is not seated quite so closely; and there is a detached faculty dining room.

The East Aurora High School Cafeteria

This cafeteria has just been completed as a part of a \$200,000 addition to the East High School built last summer at East Aurora, Illinois, with the aid of a government P.W.A. grant. While this school serves 1,800 or more pupils, the program is arranged with a noon hour which allows many to go home for lunch. The cafeteria therefore was designed to care for probably not more than three to four hundred pupils. The dining room in this case has been equipped with tables of different size—some square and some round—with the thought that this would make the room more attractive and take away somewhat from the institutional character that uniform tables in rows give.

One corner of the room is partially cut off with folding screens, making some



Cafeteria, East Aurora High School, Aurora, Illinois. Jos. C. Llewellyn Co., Architects, Chicago, Illinois

privacy for a faculty dining room. These screens can be removed, in which case the entire room becomes available for banquets or parties which are occasionally held. The serving counter is located near the main entrance from the school corridor and the line of pupils is separated from the tables by a pipe rail. The counter is entirely of steel and is finished with a polished stainless-steel top, front panels, and slide rails. The counter contains trays for knives, forks, etc.; then a steam table with cut-outs for meat pans, soup and vegetable pots, etc.; then a space for bread, salads, desserts, etc. The capacity of the last mentioned section is increased by standards supporting glass shelves.

An eight-section mechanically refrigerated container for ice cream, milk, etc., comes next, and lastly a space for chocolate or coffee urns and a checker's desk. A water cooler with glass filler and rack is located in the line of travel on leaving the checker's desk. The kitchen for preparing food, dishwashing, and carrying on all work before or after the actual serving of the meal is located in a separate room which can be shut off by doors. This makes it possible to use the dining room for an auxiliary study hall or other purpose for part of the day. The kitchen is provided with various worktables, sinks, etc., for preparing food, a bakers' table and oven, ranges, cooks' table and, at one end, a complete electrically operated dishwasher with tables for clean and soiled dishes — all as indicated on the floor plan.

The soiled-dish table is accessible through an opening from the dining room, and the pupils deliver their dishes to this opening when through with their meals. Tables and sinks are of stainless steel or are built with pipe supports and wood tops, except that a few pieces of equipment such as the bakers' table and refrigerator were reused from the old cafeteria. The ranges and ovens are covered with a hood opening into a flue through an exhaust fan that carries out all odors by insuring circulation through the dining room into the kitchen. A storage pantry fitted with shelves and cases for supplies is also arranged next to the kitchen, this room being convenient to the service yard through a rear corridor.

The cafeteria and kitchen are very simply finished in this case. The floor and base are of terrazzo divided into sections by brass strips, the base and borders being of a dark-green color with white and buff field. Walls are of smooth white plaster, wainscots of Keene's cement, and ceilings of acoustic plaster. The last mentioned helps quiet what might otherwise be a noisy room. Wood trim is enameled in ivory, doors are mahogany, and the walls and wainscots are painted in light colors, the wainscot being a somewhat darker tone.

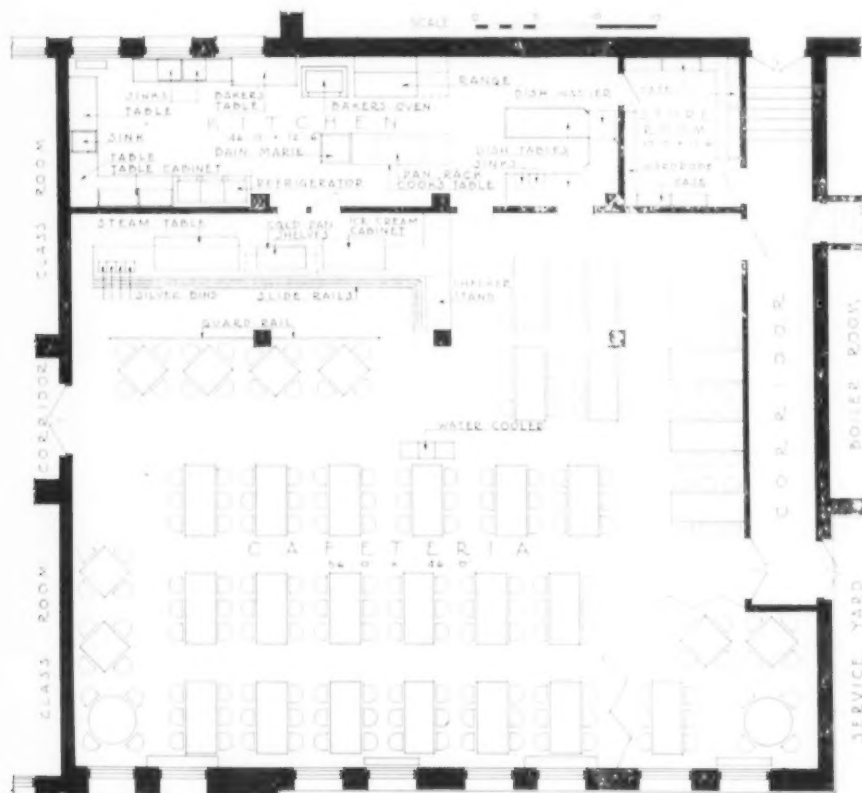
Cafeteria, Proviso Township High School

The Proviso Township High School serves the villages of Maywood, Melrose Park, Forest Park, and other adjacent

western suburbs of Chicago and has an enrollment of more than 3,000 students at the present time. A large proportion of the students make use of the cafeteria. On account of the rapidly increasing enrollment, the cafeteria was planned large enough to seat 800 at one sitting with a separate dining room for the faculty.

As can be seen by the floor plan, the dining room is separated from the serving counters, kitchen, etc., by a solid partition that can be tightly closed with doors and shutters. These doors fold around flat to the wall when the counters are in service and hence are out of the way; but, at other times, the dining room is closed off from the working rooms and is thus available for other school purposes. We think that this cafeteria is quite unique in that the serving counters are arranged in U shape in pairs so that one cashier can take care of two counters. This U-shaped arrangement allows more serving counters to be placed close to the kitchen and thus eliminates steps in carrying food, etc.

Three of the serving counters are fully equipped with steam tables, etc., for serving hot meals, while the fourth is reserved for cold items such as milk, ice cream, etc. This promotes faster service, as students desiring only a cold dish or two can use this counter without going through the slower line where full meals are served. The other counters also serve these dishes, so there is no necessity for any students going through two counters. A fifth serving counter is provided for the teachers' dining



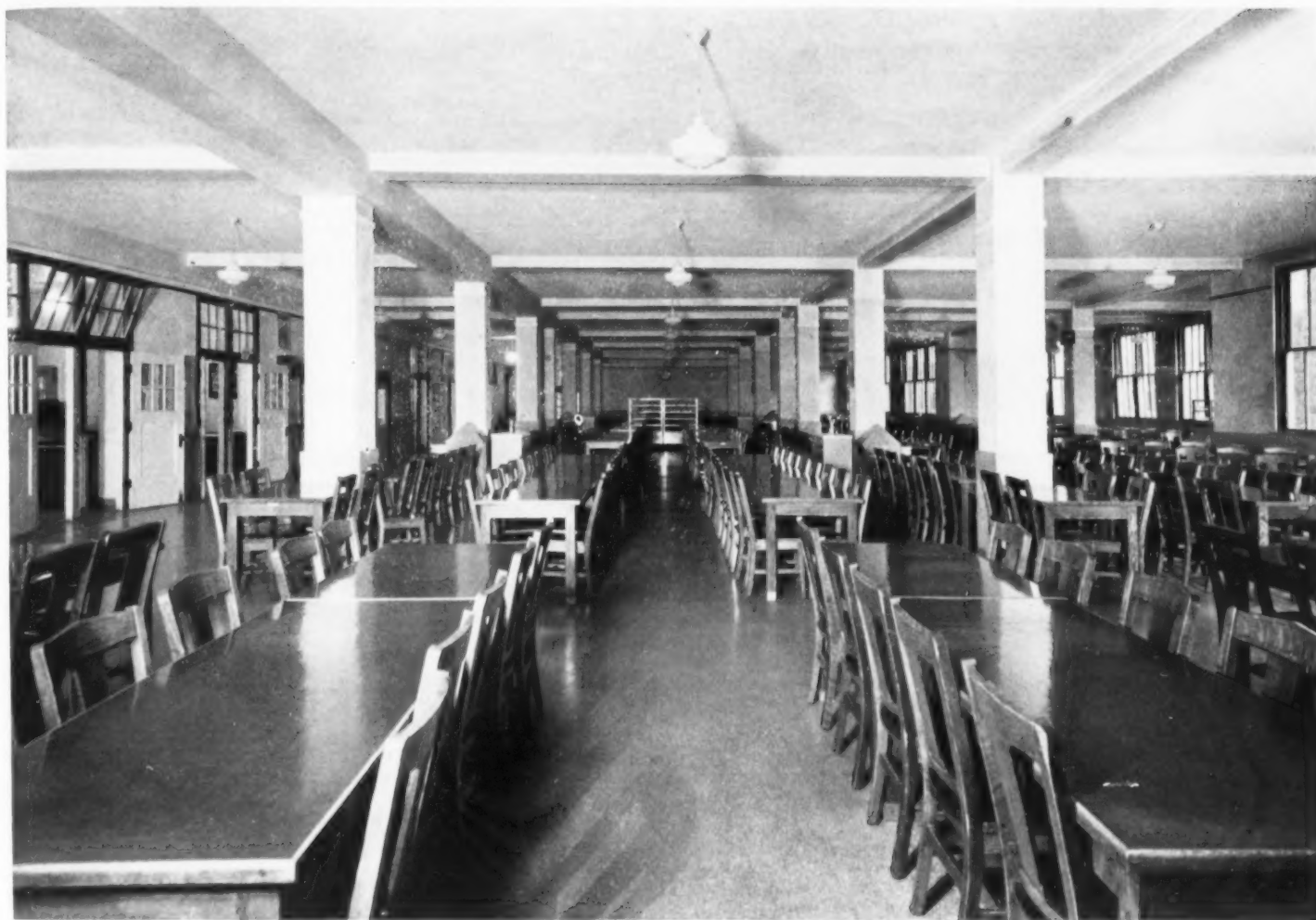
Plan of Cafeteria in the East Side High School at Aurora, Illinois. Jos. C. Llewellyn Co., Architects, Chicago, Illinois



Kitchen, East Aurora High School, Aurora, Illinois



Double U-shaped Serving Counter, Proviso Township High School, Maywood, Illinois



General Dining Room, Proviso Township High School, Maywood, Illinois. Jos. C. Llewellyn Co., Architects, Chicago, Illinois

room, and it will be noticed that all five serving counters are very conveniently located near the kitchen as well as near the dining rooms.

For washing dishes a separate room is provided which is ventilated by an exhaust fan and equipped with convenient counters with roller conveyors for handling the

baskets of dishes as they are prepared for going in or unloaded on coming out of the dishwashing machine. At one end is a special counter and sink for handling glassware. Doors are provided directly from the dishwashing room to the serving counters as well as into the kitchen for convenience in handling clean dishes.

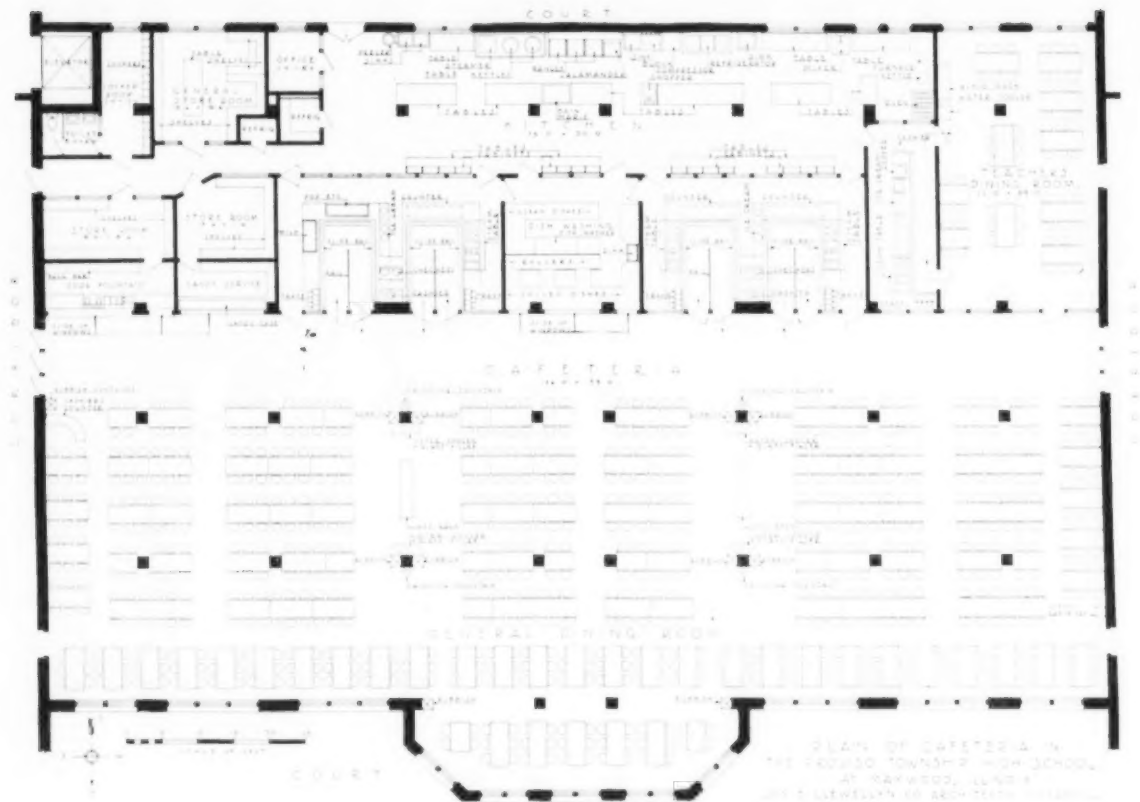
A special room is provided for the candy counter, with a convenient storeroom immediately behind. This room can be closed by a shutter when not in use, in keeping with the scheme to segregate the dining room except at mealtime. A large amount of candy and confections are dispensed over this counter.



Kitchen (looking west), Proviso Township High School, Maywood, Illinois



Kitchen (looking east), Proviso Township High School, Maywood, Illinois



Floor Plan of Cafeteria, Proviso Township High School, Maywood, Illinois

Also there is a fully equipped soda fountain which does a large business. The soda fountain may be somewhat unusual, but was included in an attempt to keep the students on the school property. It was found that before this cafeteria was built a large number of students were patronizing drug stores in the neighborhood, and there was considerable traffic hazard due to the heavy automobile travel on First Avenue and Madison Streets adjacent to the building. The soda fountain has a storeroom back of it which also houses the compressor for cooling the ice-cream containers, etc.

The plan also includes, as can be seen, a locker room and a separate toilet for the help, a general storeroom for supplies, two mechanically cooled refrigerator rooms, and an office for the chef or manager. Adjacent to this office are service doors opening into the service yard through which all supplies are brought in and checked.

The kitchen is fully equipped with the usual ranges, kettles, etc., and many mechanical peelers, choppers, mixers, etc., which aid in the economical preparation of a large amount of food. One end of the kitchen is especially arranged for the baker with an oven, pastry tables, etc. The ventilation of the kitchen is quite satisfactory as all odors are carried off by exhaust fan through a large hood over the ranges and kettles. Also it will be noted that the kitchen and dining rooms are well lighted, both in this cafeteria and in the smaller one described above.

In regard to materials used in the finish of these rooms, the effort has been to make

them simple but of lasting quality and finish to avoid upkeep. The floors in the dining rooms are of art marble tile, and these rooms are provided with art marble wainscots, base, and caps. In the kitchen and service portions the floors are of cement lined into 12-inch squares, but these floors and base have been treated with a special green ceramic finish which gives a smooth surface that will not dust and also looks well. All kitchen sinks, tables, and serving counters are of stainless steel. Dining-room tables and chairs are of oak and tables have linoleum tops. All wood trim in the kitchen is in white enamel and the walls are finished in light colors.

A CENTURY OF PROGRESS IN SCHOOL PLUMBING AND SANITATION

(Concluded from page 31)

and for many years was the accepted solution to the toilet problem principally because of the effectiveness of ventilation of such systems and the ease of disposal of the excreta. But adequate sewage-disposal systems in cities, coupled with improved fixtures which amply provide ventilation, soon made dry closets obsolete and established water-closet systems as standard. The development of general principles of toilet construction had become almost complete by 1900. But the standards have become much more rigid during recent years. What would have been considered ideally nonporous and noncorrosive fixtures in 1900 would scarcely meet the approval of the most careless inspection today. And, in the same manner, most of the 1900 stand-

ards have been refined and developed, so that today toilet arrangements in modern school buildings are as scientifically designed and as perfectly sanitary as is possible with present knowledge of science and sanitation.

Dark basement toilets are giving way to well-lighted and vacuum-ventilated rooms on all floors where classrooms are in use. Tile floors, and tile or marble baseboards, tile or marble wainscoting, and white painted walls and ceilings make the rooms attractive and sanitary. Toilet partitions are made of opaque glass, heavily enameled metal, marble, or some other permanent material. Urinals, toilets, and washbowls are made of vitreous china. Seats are open-front.

Wasteproof containers hold toilet paper. Paper towels or hot-air driers are provided for drying hands. Fixtures are rapid-acting and safeguarded against back siphonage.

OFFER STANDARD TEST CODE FOR FANS AND BLOWERS

The National Association of Fan Manufacturers, of Detroit, Mich., has announced the perfection and publication of a standard test code for disk and propeller fans, centrifugal fans, and blowers. The code was prepared by a joint committee of the National Association of Fan Manufacturers and the American Society of Heating and Ventilating Engineers, and is intended to give a better understanding of fans and blowers used in connection with ventilation, air conditioning, and industrial systems. It establishes a standard method of testing fans and blowers and provides a uniform basis for compiling performance data.

The committee has also prepared a tabulation representing a fair general comparison of various commercial single-width ventilating-fan sizes, covering single-inlet, single-width, multiblade, and nonoverloading fans.



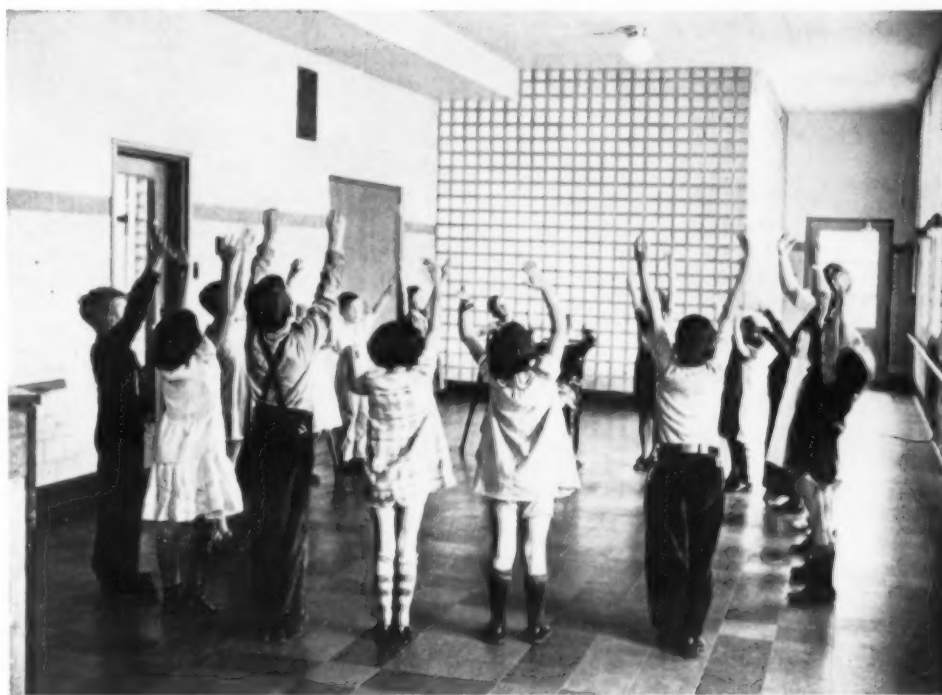
General Exterior View, James E. Roberts School, Indianapolis, Indiana. McGuire and Shook, Architects, Indianapolis, Indiana—The building faces north. The porte-cochère over the driveway shelters the west entrance of the building. Curved hand-rails are a special feature for the assistance of the children

The James E. Roberts School

A Unique Organization
William A. Evans¹

The James E. Roberts School for physically handicapped children is an expression of the philanthropic attitude of Indianapolis citizens. The building is unique not only because of its modernistic design, its beautifully decorated interior, and its special equipment, but also because of the many sources from which it draws financial support. City, state, and nation, and local philanthropic and civil organizations have joined hands in making possible this distinctive school. Private citizens also contributed to the work of the school, and other organizations have indicated that they wish to make some contribution.

In the early beginnings of special training for physically handicapped children,



In the large rhythm room, shown above, the crippled children go through their exercises in very much the same manner that normal children do. In the rear is seen the glass brick partition which separates the rhythm room from the hydrotherapy room. Additional light is thus provided for both rooms

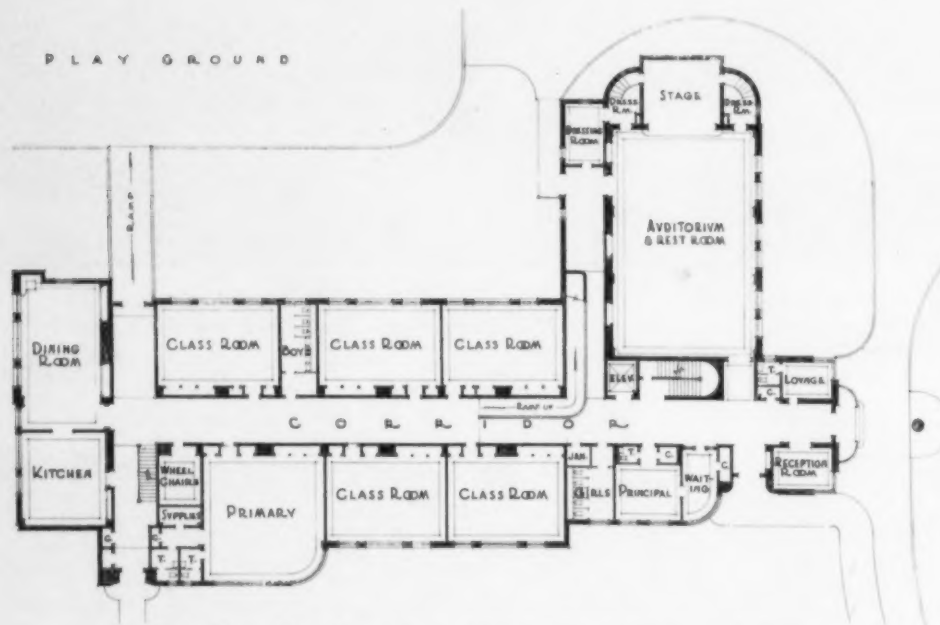
¹Director of Publications, Indianapolis Public Schools.



A portion of the large solarium of the Roberts School is shown above. Besides the solarium, the auditorium, which accommodates more than forty cots, also is used for rest periods



In the reception room of the medical unit at the Roberts School, modernistic furniture and appointments are in keeping with the up-to-date equipment. To the right is the examining room, and to the left, the treatment room



First Floor Plan, James E. Roberts School, Indianapolis, Indiana



Second Floor Plan, James E. Roberts School, Indianapolis, Indiana

the Public Health Nursing Association of Indianapolis was among the pioneers. The Indianapolis Foundation, through its co-operation with the Department of Social Service of the public schools, made possible the first studies of the need of this type of special education. Later, enactments of the state legislature brought state funds to the support of schools of this kind.

The school was established in September, 1925, with classes held at School No. 5, 612 West Washington Street. Twenty children were admitted to the school the third week of September. Before the end of June, 1926, 32 were enrolled.

The need of educational facilities for the physically handicapped, ascertained by a survey made during the summer of 1925 by the Social Service Department of the Indianapolis public schools, assisted by the Indianapolis Foundation and the Public Health Nursing Association, led to the opening of the classes in 1925.

In 1927 the state law providing for state



The hydrotherapy tank, shown above, is large enough to accommodate a nurse and a child. It is of ceramic tile. A ramp, equipped with a chromium hand-rail, leads around the tank to provide easy access to the water. A portion of the Hubbard tank is shown in the lower right-hand corner of the photograph

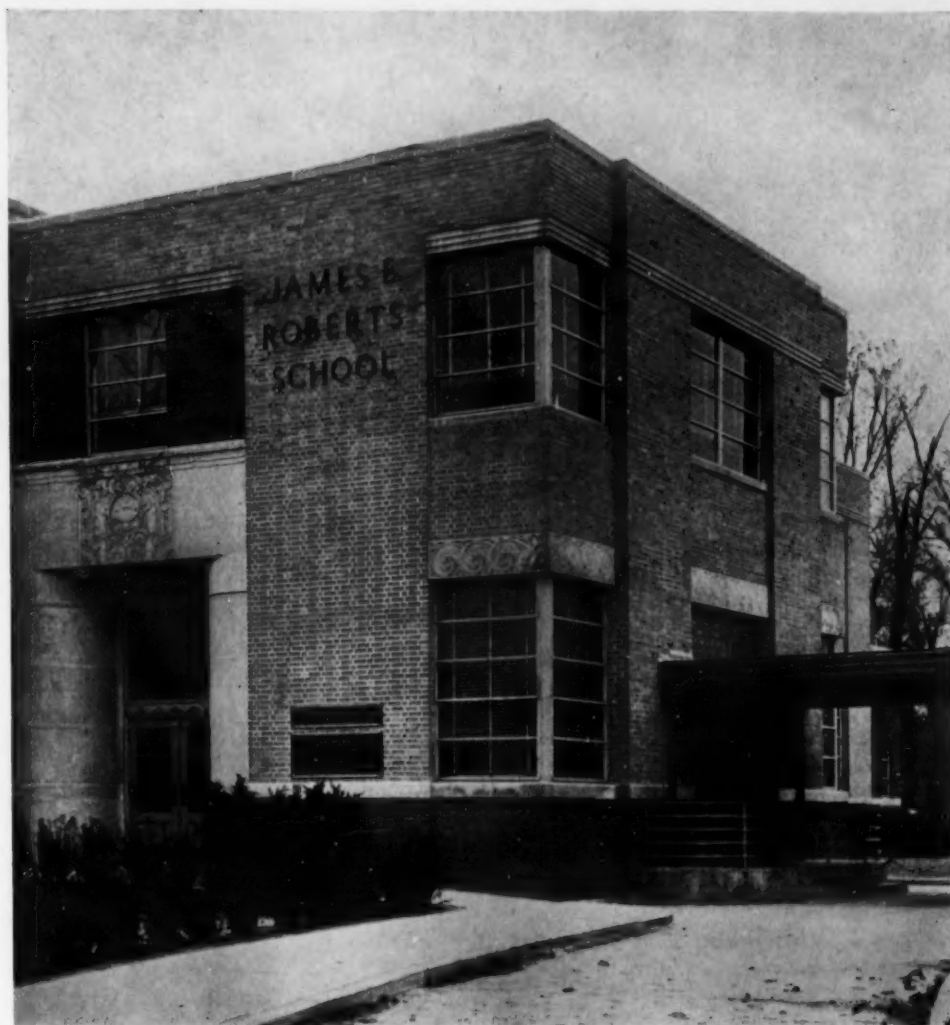
aid to defray the expense of educating physically handicapped children was passed. The school year 1927-28 saw the enrollment of the school grow to 59, and in the fall of 1928 reached 79. There was a steady increase in enrollment until in June, 1936, it had reached 191. There had been enrolled since the school opened in 1925, 340 students. The school graduated 67 pupils. Thirty-five of the pupils had returned to the regular grade schools, 30 moved away from the city, and 8 died.

Construction of the new building was begun on December 11, 1935, and the corner stone was laid April 3, 1936. Classes in the new building were opened Monday morning, October 12, 1936.

The new building was partially financed by a \$55,000 bond issue by the Board of School Commissioners, a bequest of \$65,000 by the late Mrs. Henrietta West Roberts, and a federal grant of \$98,000. The total cost of the building was \$238,000. The Board of School Commissioners provides teachers and other facilities as in any other school. In meeting the additional cost, three fourths of the expense is paid from state funds and the remainder by the Indianapolis Foundation and the Board of School Commissioners. The school is under the supervision of the Division of Special Education.

Description

If a beautiful environment has any value in education, the new James E. Roberts School should provide in abundance the cheerfulness and happiness which is childhood's right. The building is constructed of reinforced concrete; the exterior walls of brick in gray buff and brown gunmetal



A view of the northwest corner of the Roberts School shows the corner windows and the hand-rails near the entrance under the porte-cochère



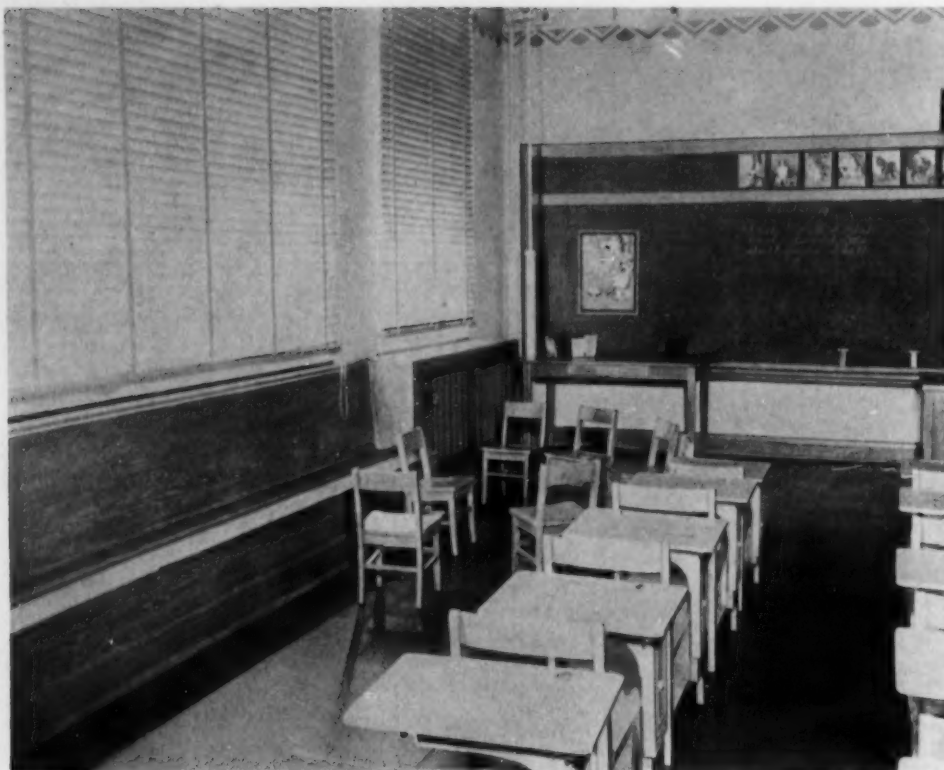
Children shown in a dining nook in a corner of the large dining hall in the Roberts School

tones; the trimming is of Indiana limestone. The building from its exterior view is modernistic in design, and fits gracefully into its setting among the trees at the southeast corner of Tenth and Oriental Streets, but the structure's outward appearance does not prepare one for the delightful colors and appointments of the interior.

The decorative scheme heightens the feeling that here has been provided every practical need for the care of children whose physical training requires special equipment. There is no waste space; the building plan, its furnishings and equipment, and its color schemes fit into a unified whole which make the building one of the most distinctive of its kind in America.

Entrance to the building is by a curved driveway leading to a porte-cochère which is supported by a single cylindrical column of Bedford stone. An overhead concealed light illuminates the steps. Curved hand rails on either side of the steps lead to the threshold. The doorway is encased in glass bricks and the transom window is of the same material.

Entering the building at the west, the visitor is impressed with the decorated cor-



Movable chairs, with adjustable desk tops, are standard equipment in the Roberts School. The built-in window seat, gridded radiator, and Venetian blinds are features of the typical classroom pictured above. All the woodwork is finished in silver gray

ridor, floored with asphalt tile in bands and squares of brown and tan. The tile brick wainscoting in buff is trimmed with a light green tile cap. The interior walls are plastered in Keene cement, white coat plaster over metal lathes. The corridor walls are in an eye-rest tint of green, with the fireproof acoustone overhead giving an ivory tone. Modernistic light fixtures feature three parallel circular chrome bands around an opaque white shade.

On the left as the visitor enters the corridor is found the visitor's reception room. Beyond this and on the left of the corridor are the principal's office and receiving room. Opposite the office are the stairs, elevator, and the foot of the ramp which leads in easy gradations to the second floor. All classrooms and corridors and the ramp are equipped with oak hand rails, 28 inches from the floor. The elevator is large enough to accommodate cots; automatic doors, push buttons, and modern safety devices are part of the equipment. The ramp is wide enough to permit the passing of wheel chairs.

In the southwest wing on the main floor is the auditorium, with a seating capacity of 350. The room is used during rest periods and accommodates more than forty cots. Storage space for blankets is built into concealed cabinets in the wall. Under the stage, chairs and cots are stored on low trucks. The walls of the auditorium are in a maize tan, shading from the ivory ceiling to the walnut finished wainscoting. The floor is in a three-tone plaid of seal brown,

walnut tan, and golden tan. The light fixtures are inverted glass cones of a buff tone. The stage, finished in light green and cream is hung with curtains of rust damask, in a green and gold modernistic design.

The six classrooms on the main floor have floors of asphalt tile with a cactus-green field and golden tan spots. Each has a window seat with storage space beneath it. All radiators are gridded to prevent the danger of burns to children falling against steam pipes. Each classroom contains a teacher's supply closet and built-in wardrobes for children's wraps.

At the east end of the main corridor is the dining room, with a seating capacity of 92 children. Two walls are in Italian blue; the other two walls and the ceiling are citron yellow; and the borders are stenciled in rust. The floor, in two shades of blue asphalt tile, is bordered with the buff brick tile wainscoting capped with green. Around the room, above the wainscoting are nursery rhyme figures stenciled in blue.

The Second Floor

The second floor corridor leads to three regular classrooms, the domestic-science unit, rooms for occupational therapy and industrial arts, the solarium, the medical unit, teacher's rest room, and the hydro-



A ramp with an easy ascent makes traveling from the first floor to the second floor a matter of no difficulty for the physically handicapped children. An elevator and the conventional stairways are also available. The above photograph shows the ramp in a view looking toward the west end of the corridor. Note the hand-rails in the corridor and the glass brick on either side of the doors at the entrance. The corridor is floored in asphalt tile in squares of brown and tan, and the ceiling is finished with acoustone

and physiotherapy units. At the east end of the second floor a door from the classroom opens upon the sun deck. Another sun deck is at the southwest corner of the building. When direct sun rays are not available, pupils will get the benefit of artificial sunshine in the large solarium. This room will be used also for rest periods, and for special massage treatments.

In the medical unit, at the west end of the second floor are the dental clinic, reception room, examining and treatment rooms. A glass brick partition separating the dental clinic from the examining room provides for a flow of light yet insures privacy.

In the southwest wing on the second floor are the physiotherapy and hydrotherapy units. A large glass brick wall separates the rhythm room from the hydrotherapy room. In the latter room are the Hubbard tank and a ceramic tile pool. The floor of the entire room is surfaced with slip-proof London tile. The pool, large enough to accommodate a pupil and the nurse, is built of mottled brick tile in terracotta effect. The interior is of white tile. A chromium hand rail is inside the tank. From the floor level a small ramp leads around the pool until it reaches the height of the edge of the tank, permitting easy access to the water. Toe space is built into the base of the pool to allow attendants to stand close to the tank.

In the basement is a large playroom which may be used in inclement weather. Heating will be by the steam from the

plant of the Arsenal Technical Schools. Air-washing and blower units and an incinerator are in the basement. This heating and ventilating is the split-system type. Air is drawn from outside the building to the plenum chamber over heat-tempering coils to the air-washing system. After the air is washed, it is again sent through heat coils, where it is raised to room temperature, and is then carried through metal ducts to the classrooms. The washed air system is supplemented by direct radiation, and all radiators are grilled to protect the children.

Exits to the playground, at the southeast and southwest corners of the building are equipped with ramps. The playground is at the south and east sides of the building.

A Distinct Service

Physical care is of necessity one of the first considerations and must go hand in hand with academic instruction, if the child is to reap the full benefit of the school. The school has had fine co-operation with hospitals, clinics, physicians, social agencies, outstanding friends and parents. No child is admitted until a complete physical examination is made, and he is recommended for the school by the proper medical authority.

The pupils in the school make normal educational progress in most cases. The great objectives in educating the crippled child are to promote the physical rehabilitations and give opportunities at the same time for academic instruction and social

training. Every effort is made to create and maintain self-confidence which leads to success in assigned tasks. Vocational training is encouraged with at least two objectives in mind — occupational therapy and beginning training that will function into the economic life of those who are least handicapped. Effort is made to change these physically handicapped children from dependents in the home or society to independents, men among their fellow men.

The academic work keeps pace with the regular school inasmuch as those who have returned to the regular school have taken the regular grade work; those who have gone on to high school have made average grades — many, in fact, above average.

Visitors are greatly surprised at the happy atmosphere and the cheeriness of these little cripples. The highest compliment to the school has been the recognition by visitors of the independence and spirit of service shown by the children.

Found in a scrap book at the old Roberts School was this bit of verse. It catches the spirit of the school.

THE CREED OF THE DISABLED

Once more to be useful!

To see the pity in the eyes of my friends
Replaced by commendation!

To work — produce — provide —
Seeking no favors — giving none,
A man among men!

In spite of these physical handicaps.

Improvements in Schoolhouse Construction

Francis R. Scherer¹

During the postwar period there has been a marked advance in the development of materials used in the construction and equipment of school buildings. In general this advance can be attributed to the material manufacturers themselves, to independent research work, and to the insistent demands of design offices for something better.

The manufacturers have found it desirable to keep abreast of the times by improving their products to offset the advantages possessed by competitive materials and equipment. Groups of manufacturers engaged in the same business have formed associations and set up splendidly equipped research laboratories for the improvement of their products. Examples of this are seen in the work being done by the Portland Cement Association and by the

Copper and Brass Research Association.

In university laboratories throughout the land research work is being carried on both by faculty members and fellowship students. Associations such as the American Concrete Institute, the American Institute of Steel Construction, the National Lumberman's Association, the American Society of Heating and Ventilating Engineers, and the National Fire Protection Association, to name but a few, have by their committees and annual meetings for review and discussion by their memberships, made pertinent contributions. And outstanding is the splendid work being done by the United States Bureau of Standards.

It is not the purpose of this article to enumerate the many improvements brought about in recent years. Mention of a few, however, will serve to bring to mind many not cited. Most of us will agree that the major improvement that has taken place in schoolhouse construc-

tion during the postwar period has been the almost nation-wide adoption of fire-resistant construction for buildings of two or more stories.

Some Important Advances

Another improvement concerns mortar mixes for laying up exterior walls of masonry units so as to minimize leakage. Quality and color of glazed structural tile and brick and their miscellaneous shapes have been stepped up. One can now look out of a school window without getting a too-distorted view, thanks to recently improved processes of making glass. There is increased use of nonferrous metals for weather exposure, for concealed piping, and for hot-water services. One can find improvements in the construction of doors and in their hardware; in a variety of flooring materials which are resilient, satisfactory in appearance, and readily cleaned; in the several materials for sound absorption and for heat insulation.

¹This paper was prepared for the recent convention of the National Council on Schoolhouse Construction, by Mr. Scherer who is Architect and Superintendent of School Buildings, Rochester, N. Y.

Services to buildings are being provided more with an eye to future demands, particularly expensive underground work, such as water supply, drainage, and electric feeders. Structural-design advances, such as better materials, control, and experience, make possible increases in allowable working stresses of concrete, reinforcing rods, and structural shapes.

Equally great strides have been made in the mechanical services, such as less noisy fans and ventilating units; semi-automatic coal-burning and oil-burning devices; china stall urinals; water closets with open-front seats and hand-operated flush valves; sanitary drinking fountains; hair driers; efficient luminaries; clocks and program systems operating from the house current; and emergency lighting units.

Surely a marked improvement has been made in several areas in the matter of exterior design. For this the nation's gratitude to the architectural schools and to the state registration boards.

The Architect's Role

One recognizes the important role the architect and the engineer play in determining the type of construction, the materials to be employed, and the building services and equipment to be installed. This role becomes increasingly important if in the community in which the building is to be erected there does not exist a code of minimum requirements governing the planning, construction, and equipping or if there does not exist a state department possessing the right of review and approval of working drawings and specifications prior to award of contracts.

The objective of a good design office is to create a building which will best meet the purpose for which it is to be built, with materials and equipment intelligently selected for the purposes they are to serve, and at an initial cost which will prove economical in the light of the subsequent and recurring costs for maintenance and operation.

It is their obligation and our obligation to encourage all agencies working in an effort to better construction and to lower costs. Unless our attitude remains a sympathetic and co-operative one, progress will be slackened. Along with such obligation, however, we have a definite duty to fully analyze and evaluate the "improvement" to determine that it really qualifies as such. Surely each of us would welcome an opportunity to undo some one thing about even our best building.

Not infrequently the basis for the claim of a manufacturer, more interested in sales than in adaptation of his product to a specific requirement, lies in the fact that it is cheaper than that previously used. With but few exceptions we accept that cost is a limiting factor imposed on the construction of new schools; therefore, systems and materials of construction and items of equipment which can be provided at a lower

cost meet with general favor. Unfortunately there will always be those who are more interested in making immediate sales than in developing a more satisfactory product, relying upon high-pressure salesmanship, working over or around the architect, for an approval from an uninformed or partly informed individual who by reason of his avocational office finds himself with power to render the decision.

The Problem of Information

The problem then seems to be one of getting to such individuals authoritative and unbiased information. School systems sufficiently large to engage permanent personnel to supervise the operation and maintenance of their school plants, can to some extent, as a result of the experience gathered over the years, point the way toward improvements in material and equipment which really qualify. Through exchange of ideas with personnel likewise engaged in other school systems the experiences of the several systems are made available to each. This, however, does not particularly help the smaller district since the information is not readily accessible to them.

True, there are today agencies such as the National Council on Schoolhouse Construction, the National Advisory Council on School Building Problems, and the National Association of Public-School Business Officials, which are doing good work along the line of assembling data; but the manner in which to make this information readily available to all of those responsible for spending large sums of taxpayers' money, begs for early solution. At this time it appears as if the answer may soon be found through the American Council on Education which already has taken steps to bring into being a School-Plant Research Council having a permanent personnel which will assemble results of pertinent research work already done and which will direct and co-ordinate research work in those fields where it is most urgently needed. The Office of Education at Washington should make an excellent medium through which such data could be widely disseminated. Once the data are available, there remains only the problem of so informing school officials, planners, and designers, who are earnestly seeking intelligent, authoritative, and unbiased information.

Schools of Nation Benefit Under Federal Works Program

Projects for the construction or repair of schools have been popular with the Works Progress Administration. In fact,



Native stone and local mechanics were employed in the erection of the Rehoboth School in DeKalb County, Georgia. An educationally effective as well as an economical building provided a great deal of work for local people

there have been more such projects than of any other single description except one — farm-to-market roads. According to the latest available statistics, compiled for September 30, 1936, there were 7,498 projects for the construction or repair of educational buildings, a classification that includes graded schools, secondary schools, colleges and universities, libraries, museums, dormitories, laboratories, and the like.

When this number is added to the 1,530 school buildings constructed and the 31,418 school buildings improved under the Federal Emergency Relief Administration, it is apparent that the government work will have affected about one out of six of the 241,428 public-school buildings counted in the census of the Bureau of Education of the Department of the Interior for 1933-34.

The estimated cost of the 7,498 WPA projects is \$102,797,785, of which the sponsors have agreed to contribute \$22,219,966.

In the handling of this vast educational program, the WPA has no set standards for construction and repair which it attempts to apply throughout the country, except, of course, that by order of the President uniform labor rates are paid within certain localities, and materials purchased by the government are bought by the Procurement Division of the Treasury Department after competitive bids have



Fine Arts Building, Alexander Hamilton Junior High School, Long Beach, California—One of the new earthquake-proof schools erected in California by the Public Works Administration. The exterior is in yellow concrete with blue trim and chromium metalwork

been received. Plans and specifications are drawn by architects for the sponsors and the WPA's only part is to determine whether they are adequate and whether the sponsor, usually a school board, or a school district, or whoever has charge of the schools, has offered a sufficient contribution. Included in the consideration of adequacy is the question of whether relief labor is available in the immediate vicinity of the project. The financial condition of the sponsoring school unit is always taken into consideration in deciding on the sufficiency of the proposed contribution.

The reason for the lack of construction and repair standards is almost obvious. The school problems of different communities are rarely the same, and the kind of school badly needed for one county may not fit the needs of an adjoining county. Thus, in Pike County, Ohio, one-room schoolhouses were replaced with modern four-room schoolhouses and in the Spring Creek district of Seminole County, Georgia, the Franklin D. Roosevelt Consolidated School was constructed to replace three community schools. In a number of counties of many of the states it was thus found advisable, in the interest both of economy and efficiency, to erect consolidated schools. Improvement of roads and operation of school busses has made this possible to a degree not before known. However, in

many communities, for instance in sections of Kentucky, it was found necessary to build one-room schoolhouses, either because there were insufficient pupils to justify consolidations, or because transportation facilities were not available, or for other reasons.

In the State of New Mexico, Governor Clyde Tingley sponsored a state-wide program for building schools, many of them, he said, in communities that the average New Mexican had never heard of before. He also pointed out that the building of the schools would provide work relief in some communities for the first time though it had been badly needed for many months.

In a number of Mississippi counties, a general rehabilitation of the schools was found to be the only work relief available, and projects were sponsored that included just about every kind of school repairwork known.

All kinds of materials, including salvaged materials, were used, availability and economy of materials being the determining factors in each instance. Native materials were used wherever possible. At Holly, Colorado, stone was sawed by WPA workers at a quarry ten miles north of the town and hauled in to be used in the construction of a new gymnasium and community building in the Holly Consolidated High School. At Heber Springs,

Arkansas, a home-economics building and a vocational-agriculture building were constructed of native stone. In Pennsylvania, North Carolina, Tennessee, Kentucky, and other states having stone deposits, it was sometimes found economical to build schools of stone, while in other states, the availability of brick-clay deposits made it advisable to build schools of brick or brick veneer. In Arizona, New Mexico, and Colorado, adobe brick was frequently used. At Osmund, Wyoming, WPA workers cut logs in an adjacent forest, hauled them down to an old water-driven sawmill and sawed the lumber, even to the shingles, for the building of a modern four-room school building.

In some states the county school authorities took advantage of the opportunity to use WPA labor to rehabilitate their rural as well as their city schools. One instance among many was in Kanawha County, West Virginia, of which Charleston is the county seat, where school officials successfully promoted a program for the rehabilitation of 122 of the 180 rural schools of the county. The school authorities also included in their program the construction of 87 bus waiting stations.

Although care has been taken to avoid fancy or trick building in the construction of new schools, emphasis has been placed on the construction of the most modern

buildings which the communities can afford and which will be of as permanent construction as it is possible to make them. In Doyle Township, Schoolcraft County, Michigan, hermetically sealed glass bricks, each four inches thick, were used instead of windows which, no matter how well constructed, let in drafts during the chill winters of Northern Michigan. An air-conditioning unit was attached to the heating plant in the basement.

Use of the salvaged materials and the reconditioning of old buildings to make them suitable for school purposes was not infrequent. In Toledo, Ohio, a bequest of \$25,000 had been made in 1926 for a home for the Luella Cummings School for underprivileged girls, with the proviso that it must be utilized within ten years. For various reasons, the board of education had been unable to utilize the bequest until the WPA agreed to provide the labor. The board obtained most of the material for the structure by salvaging parts of the Lucas County Armory, the Milburn Wagon Works, and an apartment house. On this job the government spent \$30,967 and the sponsor \$23,024. One of many other instances of the use of salvaged material was in a four-classroom addition to the Pinola-Stonewall Consolidated School in Mississippi.

Many of the WPA school projects involved large expenditures, both by the government and by the sponsors, but the expenditure of comparatively modest sums was the general rule, and no project was too small to be overlooked. In Kalkaska Township, Kalkaska County, Michigan, the school board had a hard time raising \$2,875 for a school to replace one that had been burned in 1935, and found this sum was not sufficient to complete the building until the WPA agreed to provide \$460 in labor.

Although the Trinidad (Colorado) State Junior College was authorized in 1925 by the state legislature, no funds were provided for a building and classes met in the city's high school after high-school hours until, in 1935, the old Tillotson Academy was purchased through public subscription, and, in 1936, the WPA provided the labor to reconstruct it into a college building with a capacity of 400 students.

Another reconditioning project was an old school at Broadway and Academy Streets in New York City. This building had been condemned and abandoned in 1916. Only the substantial shell of the old building was used to create an addition to the comparatively new school next door, a double-decked bridge connecting the two buildings which have a combined capacity of 3,000 pupils.

Many knotty problems were solved by school authorities in the South with relation to the providing of school facilities for colored children and there are many instances where communities which hitherto simply had had no facilities for their edu-

(Concluded on page 94)



Modern School for Modern Pupils — A classroom in the model Hamilton Junior High School, Los Angeles, California, erected by the Public Works Administration



Healthful, comfortable four-room schoolhouse built by the WPA in Pike County, Ohio. This is one of eleven such buildings erected by WPA in this rural county to supplant forty dilapidated one-room schoolhouses



Running track and steel bleachers on athletic field at West Waterloo High School, Waterloo, Iowa. This is one of the WPA projects in Iowa

The Future of School Architecture —

As Seen By Leading School Officials

PRESENT PROBLEMS SCHOOLHOUSING AND BUILDING MANAGEMENT

H. L. Mills, Business Manager,
Houston Independent School District,
Houston, Texas

It must be admitted by every well-informed person that the past half dozen years have been most critical ones for the public schools of our nation. The depression brought to the schools not only increased enrollments and increased responsibilities, but greatly decreased revenues. The crisis closed hundreds of schoolhouse doors, many, many others were forced to short terms and overcrowded conditions. Public support was greatly weakened—in some cases almost, if not entirely, withdrawn.

The great problem of school people throughout America at the present time is to try to provide comfortable, well-lighted, sanitary, and well-ventilated buildings so necessary to the general welfare and mental efficiency of this ever-increasing multitude of boys and girls who are pleading for a chance, begging that they be not required to pay the price of the world's greatest depression.

Boards of education all over America have and are struggling not only with the problems of providing new buildings, new equipment, and modernizing old school buildings, but are confronted with the further problems of budgets not yet restored to the 1930 level, with maintenance budgets still far too low, with many buildings rapidly deteriorating and with many teachers and some of the public far more interested in full salary restorations than in seeing that every child in this, a nation which rates full, universal, democratic education as its greatest pride, has a seat in an adequately equipped schoolroom.

To summarize, the present problems are an awakening of the citizens of America to the increased responsibilities of the public schools, in this ever-changing world, and to rededicate themselves to the task of our illustrious forefathers in seeing that every boy and every girl shall have the chance to which they are so justly entitled. We need to adopt as a national slogan, "THE CHILDREN OF AMERICA SHALL NOT PAY ANY PART OF THE COST OF THE DEPRESSION."

PROBLEMS IN SCHOOLHOUSING AND BUILDING MANAGEMENT

W. K. Wilson, School Buildings and
Grounds Division, New York State
Education Department, Albany, N. Y.

The title given to this literary venture touches two broad, divergent, but inseparable fields in school-building problems—the provision of adequate and appropriate schoolhousing facilities, and the maintenance and operation of these to the end that they will remain constant co-operative factors in the general educative process.

The problems of schoolhousing alone are legion, in the light of their many important detailed differences. In their general aspects they may be classified roughly as educational,

financial, and structural. Obviously there is no complete separation.

We must admit that without adequate financing there can be no school-building projects, regardless of need. And we must admit the relative importance of sound architectural and engineering practice, in both the design and construction of school buildings. But after these admissions it is the firm conviction of the writer, engaged daily in the attempt to assist school districts in solving their schoolhousing problems, that the most important problem of all is the determination of adequate schoolhousing facilities, *in the light of educational needs and practices.*

The educational philosophers, researchers, and administrators must determine what to teach, whom to teach, and how to teach. But it is only after these determinations have been reached that the schoolhousing specialist—if there be such—is ready to co-operate with the philosophers, researchers, and administrators in the effort to plan, design, and construct school buildings and equipment that will assist rather than hinder those engaged in directing and encouraging the activities of education. Perhaps one of our real schoolhousing problems is the development of the school-building specialist, who will be something of an educational philosopher, researcher, administrator, financial expert, architect, and engineer all rolled into one.

In terms of actual practice, the fundamental schoolhousing problem for a given community is to determine, first, the number of pupils to be housed, the levels of education to be carried on, the educational offerings, and the type of educational organization to be maintained. From this point on, the problems of planning, designing, and construction arise. And these are literally crying aloud for better solutions through continued and thorough research in the light of changing educational philosophies and practices.

ESSENTIAL CHANGES IN FUTURE SCHOOL ARCHITECTURE

George F. Womrath, Assistant Superintendent of Business Affairs, Board of Education, Minneapolis, Minnesota

Regardless of what may have been or what still may be the contributing reasons, whether depression, codes, conventionality, or what not, it has been the almost national experience that for a number of years it has been, and still is, extremely difficult to raise money for a new schoolhouse construction. This has resulted in a careful re-study of building design and structural ensemble, resulting, strangely enough, in better designed yet lower cost buildings.

Simplicity of design is forging to the front. Elaborate exterior embellishments and costly features of construction are passing out of the picture without sacrificing beauty of appearance, softness of outline, and delicacy of model, well and harmoniously proportioned.

As these changes have become the accepted mode of exterior treatment, with resulting economy in cost, it has been possible to include in the structural design highly desired

educational features that heretofore have been omitted because they added too much to the ultimate investment. To mention a few of these is to open wide the vista of essential changes that may be observed in future architecture to produce an outstanding, modern school building.

Ventilating systems that omit humidifying of the air and used in winter only will be replaced with air-conditioning systems which will be as efficient in summer as in winter.

Noisy interiors will no longer be looked upon as an inherent characteristic of a schoolhouse. Acoustical treatment of every part of the building, especially auditoriums, music rooms, lunchrooms, and gymnasiums introduce quietness that is conducive to repose and better instruction.

Lighting facilities have been studied carefully, resulting in higher intensities fostering conservation of eyesight. The operating cost of these higher intensities is offset by electric-eye control, which automatically turns the lights on and off according to a desired predetermined intensity of illumination.

Instead of expensively constructed maple floors involving sleepers, sleeper filling, waterproofing and soundproofing, without actually overcoming noise transmission, a simplified construction will be used comprising a shallow leveling-up mixture over the rough concrete floor slab, surfaced with a priming coat of mastic upon which is laid directly the maple flooring, forming a solid, compact, noiseless unit.

Service systems for public address, radio, and loud-speaker equipment will be the conventional instead of the exceptional part of every specification.

Window treatment to accommodate the new types of shades, louvers, and venetian blinds, and the various kinds of new glass.

Glass blackboards and special blackboard lighting.

Built-up instead of concrete roof construction, with proper insulation, over concrete top-story ceilings.

Special construction of exterior brick walls and membranes to prevent leaks of both air and moisture.

Continuous floors with movable, soundproof partitions built upon them instead of into them and so that rooms may be changed in size at will at small cost.

These are but a few of the essential changes that must be observed in future architecture.

THE FUTURE IN SCHOOL ARCHITECTURE

William W. Drummey, Superintendent,
Department of School Buildings,
Boston, Massachusetts

Future schoolhouse architecture must keep in mind low-cost operation as more important than low first cost. Most municipalities are hard pressed and upkeep money is not as "romantic" as a new appropriation, nor has it PWA assistance. With this idea in view, I suggest architects consider using glass masonry in window apertures, thus saving time and money, and vastly improving ventilation

with its attendant fuel saving. There is no need for windows in classrooms anyway.

I suggest omission of all locker rooms, always a problem in design. It costs no more in a junior or a senior high school to install wardrobe space at the rear in classrooms. The upkeep is negligible and the teacher control is better.

I suggest corridor wall-bearing buildings, with steel partitions, soundproofed between end walls. This allows such educational rearrangements as may be necessary without structural disturbance.

I suggest no plaster ceilings. Oiled forms for concrete, carefully stripped, leave the concrete fit for painting. If paneled at the sides of the room by omitting pans in the grid system, a very pleasing effect is obtained.

I suggest installation of either sheet or cork asphalt on all yard surfaces. This gives a better play surface and prevents dirt from being tracked into the building, eliminates gardening care, and gives proper conduct of drainage water.

I suggest elimination of all direct radiation, except on the side oriented to receive the prevailing winter winds. Unit heaters, individually controlled in each classroom, especially without windows, are to be preferred.

I suggest the possible elimination of some four inches of floor, by using movable furniture on a very heavy mutual cast base, allowing three-way adjustment of desks and chairs as a unit. By this linoleum-covered grano can be applied direct to the slab, and this may be used in elementary schools where ordinary fixed furniture on wooden floors, on under-floors with paper, screeds, and sills are required.

WHAT ESSENTIAL CHANGES MUST BE OBSERVED IN FUTURE SCHOOL ARCHITECTURE?

Edwin F. Nelson, Business Manager,
Board of Education, Hartford, Conn.

To my mind the most essential changes necessary in future school architecture are changes which will permit a larger participation in the life of the community than the present school building can furnish. The future school building will be designed more as a community center than as a school. It will provide opportunity for adult recreation and education. To provide for the ordinary school day, as we now see it, will be only a part of its function. In our city nearly all buildings, poorly adapted though they are, are in use six evenings each week.

The school building of the future must be, above all things, flexible. As changing techniques of teaching in the past few years have made obsolete buildings which met their need when they were constructed, so will today's newest buildings be found deficient as the activities which they house are developed. Education is not a static science and the building for its use must be able to develop with it. The school building of the future must not be permitted to restrict the school program as the buildings of the past have done.

Future school buildings must be attractive. More and better thought must be placed on landscaping and exterior beauty and an entirely new feeling of interior attractiveness through beauty of form and color must be developed. I believe the present plain cubical classroom with its cream or tan paint and its brown dado will vanish with the present generation of school administrators.

The new school building must be cheaper.

It will be necessary to construct an ever-increasing number of buildings and it will no longer be found popular to lavish the community's money on extravagant ornamentation which serves no useful purpose. The mechanical equipment must be simpler; the millions of dollars' worth of improperly used heating and ventilating equipment, in particular, found in today's schools will be found necessary. A rather complete revision of school-equipment thought is even now in order. I believe the development of new building materials will be accelerated with a return of better business conditions. The school architect will have at his command a much wider range of materials and will have to be extremely careful in his selection of the materials he will specify.

I should say the essential changes to be observed in future school architecture will be in the design of buildings for community use, buildings which will offer a maximum of flexibility, buildings which will be attractive to work in, and above all things, economical in construction and operation.

THE MODERN TREND IN ST. LOUIS SCHOOL ARCHITECTURE

The city of St. Louis, Mo., has for several decades led in the matter of school architecture. Its structures embodied from time to time the best thought and experience in interior orientation and exterior design and were considered models in that type of architecture.

The prestige which St. Louis thus obtained was due on the one hand, to the zeal and enterprise of the late William B. Ittner, who became an outstanding figure in the field of school architecture, and on the other hand, to the progressive attitude of the local board of education. Thus, every successive schoolhouse embodied the best of its predecessors in ideas and improvements that were entirely new and untried, and eliminated the inexpedient and impractical.

Since then the city of St. Louis has lost nothing of its former reputation as a center of splendid school structures, and it may prove of interest to learn something of its present approach to the subject. This approach is well stated in the following statement, recently made by George W. Sanger, architect and commissioner of school buildings for the St. Louis board of education.

Subject to Contemporary Conditions

"We believe that all buildings, and especially those designed for public use," states Mr. Sanger, "should and do outline by their plan, and by their design, contemporary social conditions. In St. Louis, during some twenty-odd years, prior to the beginning of the past decade, we were busy finding ourselves, content to follow and to adapt to our uses, fundamentals from the past. The majority of our schools were designed along lines of English domestic architecture, with an occasional leaning toward Mission or Spanish, or that of the Netherlands. During the ten years just passed, the effect of modernism has gradually gained influence over the well-known conservatism of our good city.

"We feel that we have been able to weed out much of the ill-considered and erratic from the sounder ideas of modernism in architecture and planning, and we are happy in the belief that true modernism will eventually lead us to a new American style of architecture that will worthily reflect all that is good

and wholesome in our modern American life.

"It is our desire to preserve an open mind, in touch with the 'public pulse.' While we are thoroughly in sympathy with the restless vigor of the times, we still retain a hearty respect for the conservatism of maturer minds. I will mention a few of our later schools and how we approached each problem.

"The Cole School. This is an elementary school. Here the surrounding activities and the restricted area of the premises presented a problem which practically demanded a modern treatment, it being necessary to design a four-story building—the skeleton type of construction, using reinforced concrete columns as well as floors was clearly indicated. This led, naturally, to a frank expression of construction, which at the same time would suggest the activities within.

"The problem thus presented was of unusual interest, as follows: first, to meet all educational requirements; second, to accent the lines of construction, and at the same time to indicate the educational activities within; third, to proceed with the utmost simplicity throughout, and at the same time to avoid suggestions of forbidding severity. The contract for this building was let in February, 1930.

"The following month—March, 1930—the contract was let for the Hadley Vocational School. The name of this school indicates the types of construction for which the building is required. The plans and the design were, therefore, along lines expressing industrial uses, with some slight indications of educational control in vocational branches.

"In the case of the Southwest High School, the element of strict economy was added to the problem. It also became necessary to avoid, so far as possible, the noise and the bustle of a busy traffic intersection. The problem thus presented held an interest engrossing to a degree far beyond the usual. The contract was let in October, 1935. The problems were met as follows:

"First, the matter of economy was met by eliminating all waste spaces in plan, by using red shale brick, with a wide range of color and texture for the exterior, with a minimum amount of cut-stone trim. Carving and other enrichments were omitted, except at the main front entrance. To avoid, as far as possible, annoyance from the traffic intersection, the building was located at the west end of the premises, which was also the high end of a steep incline. To enhance the grace of the delightful simplicity of the exterior of the building, symbolic figures sculptured in stone were placed over the main front-entrance doorways."

"The members of the St. Louis board of education," added Commissioner Sanger, "have always used their best endeavors to make the schoolhouse as nearly perfect as the available funds permitted."

NO RAILROAD CERTIFICATES FOR FEBRUARY CONVENTION

The Department of Superintendence, through its general secretary, Mr. S. D. Shankland, has announced that there will be no railroad identification certificates issued for the February meeting of the Association this year. The various passenger associations have issued notices that the special convention fares have been discontinued, and that the new one-way basic passenger fares are now in effect. In most cases, it was pointed out, the new rates are as low, or lower, than those formerly authorized for conventions.

Centerville's New High School

Thomas J. Higgins¹

Centerville, the county seat, has opened its new \$750,000 high school. The building was erected with the aid of a Federal loan and an outright grant of 45 per cent of the total contract price. The people are very pleased with the new building. Now there will be a seat for each of the 1,500 pupils who had been inadequately housed for many years in the old schoolhouse, erected more than sixty years ago. The new high-school building is very beautiful. The design is Colonial, executed in red brick with white trim. A clock tower forms the center unit of the architectural scheme.

The building contains a large gymnasium, 60 by 90 feet in size, with spectators' bleachers on two sides. Shower and locker rooms for both boys and girls adjoin the gymnasium. The auditorium, so arranged that it may be used by the community after school hours, has seats for 1,000 auditors and is provided with a completely equipped stage and dressing rooms for dramatics. There is a cafeteria and lunchroom below the gymnasium. The academic rooms provided include 21 classrooms, science laboratories, a household-arts suite; a music room for band, orchestra, and chorus; art rooms, a mechanical-drawing room; three shops for woodworking, auto mechanics and printing; commercial rooms for typewriting, stenography, and bookkeeping; and a centrally located library. The most modern equipment has been used throughout in furnishing the building.

The architect, Mr. Z. Z. Jones, is a native of Centerville, who has maintained an office here since 1920 when he was graduated from the state university. The Worth building, the Horn and the Harrison homes were also designed by him.

Before plans for the new building were started, the architect; Mr. Radcliff, the druggist, who is chairman of the building committee of the board of education; Dr. Johnson and Mrs. Beems, also members of the building committee, along with Mr. Bones, the superintendent of schools, visited new school buildings in several communities throughout the state to find the best ideas for inclusion in the plans for the new school in Centerville.

Several outside architectural firms endeavored to secure the contract for the erection of the new school building, but after due consideration the board of education voted to employ Mr. Jones, the local architect. The board members are very much pleased with his work.

Can You Shop for a Schoolhouse?

In shopping for a pair of shoes one might find a pair that would be well made, be serviceable and comfortable though lack-

ing in style. This fact would make a man hesitate to purchase them. Then the clerk shows him a pair he likes much better, but after trying them on he discovers they cramp his toes, and while they look very well, he realizes these shoes will not do because they do not fit his feet. Finally he finds a pair of well-made shoes that please his vanity and fit his feet as well as the first pair. These are the shoes he will purchase because they fit comfortably, and being well designed, present a good appearance.

Purchasing a school building is a similar experience. We see school buildings that are very efficient in the use of space and are easily programmed, administered, and maintained due to intelligent planning and construction. The exterior of these buildings may be rather plain-looking and uninteresting. We see other beautiful structures that catch the eye, but an examination of the interiors shows them to be poorly arranged and very inadequate for the purpose for which they were planned. The proportion of classrooms to laboratories and shops is too great or too little; the building has not been planned for expansion or conversion; the corridors are excessive; the auditorium is larger than needed; the windows in most rooms are spaced in such a manner as to present a beautiful symmetrical exterior with little consideration for the proper lighting of the rooms, many of which are poorly oriented.

We see other buildings which have very pleasing exteriors, and upon examination find that they are very well planned for complete utilization. The proportion of classrooms to special rooms has been carefully worked out to fit the curriculum and the number of pupils electing the various courses. The rooms are properly grouped to eliminate excessive traffic in the corridors, which can therefore be narrower, with stairways properly located. The auditorium is of ample size to provide the most efficient use of its facilities. The ceilings are of proper height. There is no excessive cubical content in the building to require yearly expenditures for heating, ventilating, lighting, cleaning, and maintaining during the life of the building.

Why Not Seek Good Advice?

If these three types of school buildings could be measured as intelligently by the average board of education committee as easily as a pair of good shoes could be selected by any one of them, they would undoubtedly select the third type of building.

If the third type of school was not the one selected, let us hope it would be the first. Even though the building might be plain in design, it fits the needs. It is in-

initely more important to house the pupils properly than to have a building which has only an attractive exterior to recommend it.

So many times, though, it is the second type of school that is selected. It pleases the esthetic taste and there would be no warning pinching of toes as in the case of the shoes to indicate its unsuitableness. Probably the only objection to the second type of school building would come from the superintendent, and his objection is often very mild, owing possibly to his inability to visualize a completed building from a set of plans and due to his reluctance to antagonize board members.

In spending our own money for an oil heater, a diamond ring, or a new automobile, we try to determine the value of the object we are buying. We do not purchase it on appearance alone, without learning whether it will serve our purpose as well. If our own experience to determine the value of the object is inadequate, we consult our friends or someone who has had experience with the article or the firm offering it. It would seem only reasonable and fair to the taxpayers that a board of education, in purchasing a product about which they know little, should use the same precaution and seek advice.

Very definite standards have been adopted for many units in school buildings. The proper sizes of classrooms to seat any desired number are easily obtained. The percentage of glass area required in relation to floor area is also an established factor. The type of blackboard and its proper height above the floor and the proper equipment of schoolrooms are facts any architect or school official can obtain from many authentic sources. *But the placing and arranging of these separate units in such a manner as to require the minimum amount of travel for pupils between classes and the elimination of all excess space is a problem for the expert in school planning.*

Hiring Experienced Architects

The size of the auditorium, the facilities to be provided in locker and shower rooms, the size and equipment of the lunchroom, the size and facilities to be provided in laboratories and shops are matters that have to be well determined to produce a complete, economical, and flexible plan. Who is going to determine these questions? Boards of education are most usually composed of business men and women, and rightly leave such matters to their superintendent and to the architect. The architect, unless he is experienced in school planning, is not equipped to answer them. Perusing plates in magazines

(Concluded on page 92)

¹Assistant Director Bureau of Research and Building Survey, Board of Education, Chicago, Illinois.

THE AMERICAN School Board Journal

Edited by Wm. Geo. Bruce and Wm. C. Bruce

What of School Architectures in 1936 and 1937?

ECONOMIC and educational conditions at the beginning of 1937 seem to indicate the beginning of an active year in the planning and construction of school and college buildings. Vast amounts of work still remain to be done in the completion and equipment of projects initiated in 1936 with the aid of WPA grants, and the favorable money markets, the rapid economic recovery of city and rural school districts through the payment of back taxes, together with the growing public opinion demanding the broadening of school services interrupted since 1929, and finally the continual shortage of school accommodations due to shifts and growth in population, all point to increased activity in new schoolhouse construction work.

The past seven years with their disturbance of economic and political advancement have seen vast changes in school-planning practice and construction standards. Much of the loss in adequate planning has been offset by general betterment in the choice of materials and care in construction. A new generation of school architects has come—most of the practitioners of the war decade and of the hectic twenties have passed off the scene. The new group is made up of younger men forced upon the school boards in some cases by local pressure for keeping work at home, in other cases by the vagaries of WPA authorities, in still other instances by the fact that the older men had lost the spirit of fight that leads to victory in public projects. Whatever may be said of the new group, they have a keen sense for functional design and plan; they are not tied by tradition and the conservatism that so often arises out of disillusioning experience; they frequently lack the sureness that comes with the observation of successes of well-thought-out plans and well-selected materials.

In general, recent planning of school buildings in smaller cities and rural districts has suffered from hasty work compelled by outside agencies quite as much as from the services of inexperienced planners. There has been too much straining for economy in the layout of single rooms and departments as well as of buildings as a whole, due to the slavish following of academic formulas, some developed a full generation ago. Many new buildings are perhaps well adapted to the immediate present because they provide a very snug fit for 1937 forms of class organization and teaching method, but they lack adaptability to change and they are inflexible for an enlarged program. The philosophy of planning brought to school projects by some of the younger men is essentially capable of growth and foreshadows enormous improvement among the architects not employed by school boards on a permanent basis. On the part of official architects there is need for this new spirit of experiment and of modernism, for unless much of the conservatism—or perhaps even official recreation—is shaken off, there will be criticism and official

repercussion. The New York City school-building survey is not due to any failure of the official architects, but it does reflect the spirit of school boards for a re-evaluation of old practices and the establishment of improved planning and construction. Unless official departments of school architecture in city school systems can point to more than a low cost of planning service and construction superintendence and can demonstrate a high type of artistic design combined with superior instructional utility and long-range economy, they do not deserve to be continued.

Whatever losses in educational planning may be charged to federal control over local school projects, these have been more than offset by the improvement in the standards of construction and the permanence of materials. From the small rural schools to the largest city high schools, there has been a marked improvement in the general quality and permanence of buildings, in adaptability of floors, stairs, wainscoting, etc., to the peculiar wear and tear which children impose on corridors, classrooms, toilets, etc. Fireproofing, safety of walkways and stairs, sound control and acoustics, sanitary and long-wearing plumbing, economical heating, and positively-acting ventilating devices, a wholly new efficiency in electrical equipment, and finally new types of apparatus for instruction and administration by radio and motion picture—are only the more striking betterments in mechanical equipment.

The most important apparent need for progress in 1937 arises from the lack of intensive study of tendencies in education, the probable changes in organization and service, the certain future growth of adult education of both the formal and the broader free-action types, and the willingness to experiment with new forms of plan and newer materials of construction. Lastly, there is the need to finance new buildings by means which will take greater advantage of federal funds to the end that local moneys may be more fully devoted to direct instructional needs. Clearer vision is needed on the part of school boards in both state and federal financing of school capital outlays. Teacher interests apparently are blinded to this necessity and opportunity.

Injudicious School-Board Deliberations

THE discussion of important school projects sometimes receives publicity which centers itself unfavorably around the board members and the school executives. This is especially true when ill feeling has been aroused, or when there has been debate involving personalities, questioning of motives, and other nonessential elements.

Experience has taught that the citizen who enters a board of education as a new member is more susceptible to unwise conflict than the member who has a few years of service behind him. The former feels that he has a record to make, or a pre-election promise to fill, while the latter knows that startling innovations and reforms are not so readily made. On this score the Allentown, Pa., *Call*, in greeting a new school-board member, has well said:

"Sometimes new members start with the idea of revolutionizing things and they usually result in troublemakers. The school system is a matter of gradual growth and careful study. Nothing is perfect, but it must be taken for granted that the years of study by both educators and directors means that a

system that works is established. Improvements are made after the most careful trials and investigation."

The seasoned member holds to a calm and circumspect attitude. He wants the facts, as well as attending circumstances, before he speaks, and when he does he addresses himself to the subject in hand. He recognizes that all school-administrative action of permanent value must be based upon tried principles and sound policies, and that whenever the true educational welfare of the pupils is forgotten, good results cannot be expected. He knows too, that the one who resorts to personalities in debate usually weakens his case and comes out second best. Experience has taught him that situations inevitably arise in which members approach a problem from opposite points of view. Impatience and irritability lead to ill-considered remarks, or unfair charges, which cause anger and bring on a battle that is later regretted. All superfluous debate and unwarranted exhibitions at board meetings not only tend to undermine public confidence but also disturb the respect which the professional workers and the pupil constituency have for the legal representatives of the community.

The scenes of unseemly strife enacted here and there in school-administrative deliberation are regrettable, more especially when they find expression in the public press. It is not claiming too much to say that in the expeditious and efficient performance of public business, the modern board of education ought to lead all local public bodies. By the very nature of its mission and purpose, it ought to set the example in that calm deliberation, thoughtful inquiry, and judicious action which is the basis of all sound administrative action.

School Operation vs. Capital Outlay

THERE is a tendency in school-administrative circles at the present time, to give some thought and study as to the relative importance of spending school funds for current operating expenses on the one hand, and capital outlays on the other. The question becomes more acute where crowded schoolhouses call for additional accommodations and suggest the diversion of funds badly needed for teachers' salaries and other current outlays.

Where this condition has existed, school administrators have been inclined to keep the schools going, and to forego capital investments. This, of course, is the only logical course to pursue. The instructional service of the school system must not be interrupted. The children must be kept in school; the teachers must be paid; and current expenses must be met.

But there are those who champion the spending of school funds for school operation, for the payment of higher salaries, longer school terms, and even for new services to the point of entirely ignoring the needs for school-plant rehabilitation and new building construction. Granted that educational supervision, the teaching service, textbooks, and supplies should be adequate in order that proper standards may be maintained, it still remains that sufficient housing must be provided, if the schools as such are to function properly.

Many school systems throughout the country are burdened with a bonded indebtedness so heavy that the annual payment of principal and interest interfere with the advantageous operation and maintenance of the schools. Capital investments made in the past were not always wisely made. But, whether this be true or not, the school plant is subject to deteriora-

tion and must from time to time be rehabilitated unless more losses are to occur.

Adequate schoolhousing is a primary consideration. There can be no school without a schoolhouse. An attempt to argue upon the relative importance of teaching as against schoolhousing can lead to nothing. Local conditions and the condition of local credit, together with the application of common sense, must determine where a new school structure is needed and is feasible.

The continued use of an old structure may be deemed necessary, provided safety and sanitation are reasonably insured. The children must not only be safely housed but also be guarded in the direction of health and physical well-being. Every board of education must, in the light of conditions, determine for itself where the need most pressing must be met in the interest of the school system as a whole.

School-Board Meetings—How Often and When?

THE board of education in an eastern city was severely criticized recently by a local newspaper because its meetings are called at irregular intervals. The editor held that meetings should be held monthly, or oftener, and upon specified days in the month. "It used to be," he said, "that board meetings were held religiously on the final Tuesday of each month. In recent years, however, the meetings seem to have been held at the individual member's convenience and regardless of the public's convenience." Just what the writer means by the "public's convenience" is not disclosed.

City boards of education usually hold their meetings in the evening. The sessions last all the way from one to five hours. County and rural boards, where the members are obliged to travel some distance in order to attend, are called usually during the daylight hours. Some city boards of education meet at three or four in the afternoon, and when necessary adjourn to an evening session.

While the great majority of school boards meet regularly once a month, on a day and at an hour most convenient to the majority of the members, there are boards, too, that are called only at a time when the accumulated business warrants a meeting. This plan may be wise in a few smaller cities, but it is highly desirable for the average school board to be informed at regular intervals on the progress made by the school system. There may be but little business requiring official action, but sufficient matters develop in any school system to warrant monthly reports and communications to be presented at official meetings.

When it is remembered that those serving as members of boards of education necessarily make a sacrifice of time and comfort for the public welfare, the question may well be asked whether in fixing the day and time of meetings, they are not entitled to observe the element of convenience. Surely, the members have a right to choose a place and a date for their meetings when all can attend.

It is illogical to call school-board sessions merely to suit the convenience of nonmembers. The general public can avail itself of the opportunity to attend an evening session of the board if it is so inclined. And no citizen can reasonably complain when the hour of board-of-education meetings is fixed at a time and place most acceptable and practical for its members.

The San Francisco School-Reconstruction Program and the Field Act

George G. Mullany

The Field Act, passed in 1933 by the California Legislature, to raise the minimum standards of construction for school buildings now standing and in use, has been tried and found wanting. That is the opinion of the California educators who have had experience with the new law which has foisted upon California taxpayers untold millions in expenses with returns of questionable worth.

Practical difficulties encountered in the operation of the new law have caused educators throughout California to make pointed comments regarding the workability of this regulation which has caused hundreds of school buildings to be closed while the children were sent to classes in tents and other temporary structures.

The San Francisco Board of Education expended \$1,200,000 for the repair or rebuilding of 16 steel-frame-and-brick school buildings during the years 1934 and 1935 to bring these schools within the minimum structural requirements of the Field Act. A seventeenth building, the Daniel Webster school auditorium, was razed and is being reconstructed, and the eighteenth building declared unsafe is not occupied as a school at present.

Because of the traditional foresight of the San Francisco board in setting aside a fund for reserve purposes, \$500,000 was made available immediately and repairs were ordered started in December, 1933. An additional \$500,000 for repair and reconstruction was made available in the 1934-35 school budget. Insurance supplied \$247,600, and the remainder came from the 1935-36 school budget, excepting \$46,039 which came from the PWA.

Following the Long Beach earthquake of March 10, 1933, the legislature passed the so-called Field Act (Chapter 59, Statutes of 1933), relating to the safety of design and construction of school buildings. In accordance with this legislation, the Division of Architecture of the State Department of Public Works issued regulations relating to the safety of design and construction of school buildings throughout California. These regulations require that all such buildings be designed to resist lateral forces. Such lateral forces may be either wind pressure of 20 pounds per square foot on the exterior surfaces of the building or, if greater, a force equal to two per cent of the weight of the building above any point. Where dependence is placed on the steel frame for resisting lateral forces, the frame itself must resist the twenty-pound wind load or at least one per cent of the weight of the building. Buildings with steel frames are recognized as better than masonry-bearing-walled buildings. If the walls are required to resist lateral forces, the wind force to be resisted is as above stated, but the alternate force is increased from two per cent to ten per cent of the weight of the building. If it is found that the steel frame will not carry the lateral force as specified, then the walls must carry the full lateral forces for bearing-walled buildings. In resisting lateral forces members may be stressed

33 1/3 per cent more than the allowable stresses in the various materials permitted for ordinary dead or live loads.

The Problem in San Francisco

The San Francisco buildings in active use by the schools fall into three general classifications: 46 wood-frame buildings, either with or without fire-resistant exteriors; 39 reinforced-concrete frame buildings, Class B, erected since 1920; 18 steel-frame buildings, Class B and C, erected between 1908 and 1919.

Wood-frame buildings have always been regarded as safe against earthquake shock, provided they are carefully constructed and the timber is in sound condition. Mr. J. B. Leonard, superintendent, Bureau of Building Inspection, city of San Francisco, caused an inspection of the wood-frame buildings in use in the San Francisco public schools to be made. His report showed that with slight repairs these buildings were all in sound condition. Suggested alterations and repairs were immediately made by direction of the board.

At the direction of the San Francisco board of education, the Director of Public Works caused two boards of structural engineers to be appointed and these boards carried out an exhaustive examination of the 18 steel-frame Class C buildings then in use. Their report stated that these buildings had not been designed with regard to resistance to lateral forces, that in some degree the steel frames were too flexible, and that there would be danger to occupants in case of a severe earthquake shock through falling of partitions and exterior walls. Immediately upon the receipt of each report, the board of education ordered the particular building closed, and arrangements were completed for housing the pupils in near-by schools.

Name of School	Year of Construction	Cost of Construction	Contract Price Reconstruction
Washington Irving..	1914	\$ 81,766.70	\$ 6,830
Hancock (Orig. Bldg.)	1911	166,321.20	12,750
Jean Parker	1911	174,491.57	35,043
Commodore Stockton (Orig. Bldg.)	1915	107,081.15	22,725
Denman	1910	191,009.84	26,843
Spring Valley	1912-23	207,243.97	36,446
Bay View	1908	126,301.69	21,000
Adams	1911	94,739.36	27,648
Girls' High School..	1913-32	684,273.01	155,455
Lowell High School	1912	346,703.59	123,079
Laguna Honda	1909	113,041.17	61,290
John Swett Jr. High	1912	105,354.22	Bids June 27
Columbus	1914-23	137,828.60	Est. 46,000
Excelsior	1911-20	127,947.25	Est. 48,500
Golden Gate	1908	70,121.77	Est. 38,000
Redding	1917	144,523.74	Est. 68,400
Daniel Webster	1917	146,305.20	Est. 22,000
(Only auditorium condemned; has been razed and new building being designed)			
Ungraded	1909	104,076.52	Est. 64,375

Difficulties were encountered by engineers and architects in obtaining a working interpretation of the new law, but despite this condition 15 of the 18 buildings ordered closed were reopened within a year.

The effect of the Act was to throw upon California communities the immediate burden of heavy expenditures and the closing of

schools immediately after inspectors found that structures did not meet the minimum requirements of the new law. The fact that the buildings closed were erected according to the provisions of the previously existing building laws, local and state, granted no immunity.

The Experience of Four Years

Inasmuch as San Francisco is the first large city in California to comply with the provisions of the new law, it is timely to discuss its workability, based upon the experience of architects, engineers, contractors, and school officials.

Considerable criticism has been directed at the board of education for the time required to repair a building closed under the Field Law—the Lowell High School, a three-story steel-frame structure of brick exterior and wooden-joist construction. The building was erected in 1912 at a cost of \$346,703.59.

The building was ordered closed on December 15, 1933, upon the findings of competent engineers. Apart from the primary consideration that safety is the first factor in the education of a child, members of the board of education incur a heavy personal liability under the Field Act if they fail to close a school summarily as soon as it is reported below the minimum provisions set by the law.

Lowell High School students attended minimum day sessions in the Galileo high-school building, from January, 1934, to July, 1935, and were then transferred to Polytechnic High School for the fall, 1935, term, attending classes from noon until 5 p.m. while the home schools were conducted during the morning hours beginning at 7:30.

It was not until July 2, 1934, more than six months after the Lowell building was closed, that a contract was let by the Board of Public Works, general contractor for the board of education, for the reconstruction of the building. Much of the intervening delay may be attributed to difficulties in obtaining from the State Bureau of Architecture permission to proceed on the basis of the plans submitted and resubmitted.

Actual working provisions of the Field Act were promulgated by the State Bureau of Architecture as to the minimum requirements. Architects and engineers and other experts identified with the Lowell proceeding agree that much of the early delay was occasioned by the indefiniteness of the new law and the failure of the state authorities to announce regulations that could be understood by competent engineers. The condition was clarified to some extent by the issuance of "Appendix A," a supplementary order from the State Department which gave architects and engineers a little less vague idea of just what was expected.

The Lowell repairs were started on July 15, 1934, and were scheduled to be completed on October 2, 1934. Delays encountered caused the contractor to petition for an extension of 45 days, which was granted by the Board of Public Works. On the night of November 1, 1934, when the building was nearing comple-

(Continued on page 66)

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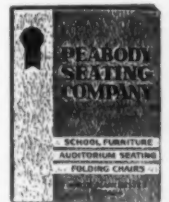
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THE SAN FRANCISCO SCHOOL-RECONSTRUCTION PROGRAM AND THE FIELD ACT

(Continued from page 64)

tion, a disastrous fire broke out which set in motion a series of events which kept the building under the control of contractors until January 6, 1936.

The fire terminated the contract, counsel for the Board of Public Works ruled. A legal situation ensued over the rights of the insurance companies, the interests of the board of education, and of the original contractor, as to indemnity for loss, with repeated threats to carry the disagreement to litigation. It was not until March, 1935, that this matter was finally adjudicated. Then a new contract was prepared and the building was repaired and reoccupied on January 6, 1936.

Analysis of the delay shows that of the 24 months the building was closed 14 were lost due either to delay in approving plans in the State Bureau of Architecture, in preparing plans or in attempting to have plans approved for construction, or in watching insurance adjusters quibble.

The approximate cost of repairing the Lowell building under the Field Law was \$270,000. Any comparison with the original cost of the building in 1912, \$346,703.59, must take into consideration the rise of almost 50 per cent in building costs. Replacement cost of the Lowell building at present-day values would be approximately \$500,000. In effect the cost of repair was about half of the cost of building a new structure.

On the total cost of repair, approximately 10 per cent, or \$26,863, was paid to architects and engineers, in addition to building

inspectors' fees and final testing to meet requirements of the state law.

It is admitted that the Lowell High School presents an aggravated case, as the cost of repairing the remaining 15 schools closed was only \$930,000, or an average cost of \$62,000 per school.

The Earthquake Danger

Seismological experts recognize that the intensity of an earthquake and the character of the ground upon which the foundations of schools are laid determine the damage which may be anticipated. In San Francisco, located in an earthquake area, it has been learned through experience that buildings located on hills or upon a rocky ground are seldom disturbed by earthquakes. The San Francisco earthquake of 1906 revealed that where buildings were erected on solid ground no damage resulted, but where structures were built on soil which was filled over marsh lands or subterranean waterways, buildings were damaged.

The ground upon which a school building rests is not taken into consideration in any phase of the state laws, and it is recognized by seismologists and contractors alike to be one basic factor in determining the safety of a building.

A practical demonstration resulted from the experience encountered in attempting to obtain a permit from the State Bureau of Architecture for the repair of the Fremont Elementary School, a three-story wooden structure which was damaged by fire in March, 1933. The state immediately insisted that the reconstruction plans as prepared by an architect be filed to meet the earthquake-resistant requirements of the Field Act. A check of the history of this wooden building showed

that it passed through the earthquake of 1906 without the slightest damage in one of the most severe tremors ever known. On these representations the minimum requirements of the Act were waived and the permit issued.

If the same corrective logic were followed in other San Francisco situations, the earthquake-damage record of each neighborhood would be seriously considered in recommending school buildings for repair. On this basis only two San Francisco schools, John Swett and Girls' High, would have fallen within the purview of the state law. Both buildings are erected in valley land or upon "made" ground. Both have been repaired to conform with every provision of the Field Act. The actual worth of the law will be tested in the resistant strength of these buildings should San Francisco ever again be visited by a severe tremor.

The most cursory review of the experiences of San Francisco with the operation of the Field Act through the State Division of Architecture will reveal that the law, through its drastic mandatory provisions, imposes hardships on local communities that were not intended by the framers of the Act.

Prior to the inspection of San Francisco school buildings under the Field Act, the buildings in question had been approved by competent engineers. At the time the buildings were erected, between 1908 and 1919, in accordance with law, they were designed, constructed, and inspected during construction under the jurisdiction of the Board of Public Works.

The San Francisco Board of Education took additional safety precautions immediately after the Santa Barbara earthquake of

(Concluded on page 68)

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This cheerful floor of Armstrong's Linotile brightens the library of Kearney High School, Kearney, Nebraska. Colors are No. 112 Oyster and No. 150 Sienna. Architect: J. P. Kelleberg.

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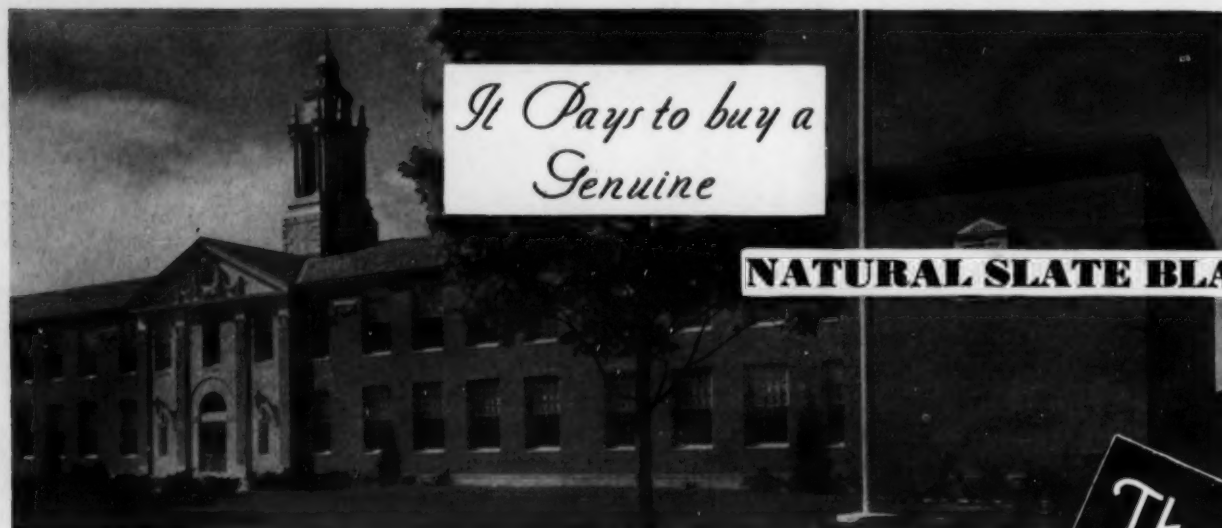
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(Concluded from page 66)

June 29, 1925, and employed a staff of engineers through the Board of Public Works to visit that city for the purpose of inspecting buildings, damaged and undamaged, to determine if the San Francisco schools might be strengthened in any manner to bring the structures to a higher standard of safety.

The report of the engineers upon their return at that time from Santa Barbara was in part as follows:

We see no reason for changing the present methods of design for the San Francisco schools. We are confident that the reinforced-concrete schools we have designed during the past 10 years would have given an excellent account of themselves if they had been in the Santa Barbara earthquake. Damage? Yes, but nothing to endanger life or offer any difficulties in repair.

One of the first persons to realize the unworkability of the Field Act was State Superintendent of Schools Vierling Kersey who said that the bill would force heavy expenditures of doubtful necessity on some California school districts. So stringent are requirements of the bill, Dr. Kersey said, that it invites exploitation.

"Building material and insurance concerns have been very active," said the state superintendent of education. "They have found a fertile field for new business." Kersey declared the Field bill at the earliest opportunity should be modified to exempt school districts "remotely removed from earthquake fault lines."

With budgets fixed and with taxpayers adamant against new expenditures, schools in districts which never have known an earthquake face costly reconstruction. The Field

bill imposes on all California schools the safety requirements of the limited areas where tremors are an established menace.

Attorney General of the United States Webb has interpreted the Act as requiring reconstruction of schools which are determined to be below the safety standards or the alternative of closing the buildings. Mr. Webb further held that in the event of accident to children the district and school trustees would be personally liable.

Following this ruling, building material men and contractors are said to have become active in agitating for school-building reconstruction. Insurance concerns, Dr. Kersey said, sought from him a list of schools inspected and those to be inspected so that they might sell liability policies to trustees. Dr. Kersey refused this information. "Complaints have been sent to this office from all parts of the state," said the superintendent.

THE PAST THREE YEARS IN SCHOOLHOUSE CONSTRUCTION

(Concluded from page 42)

been in the enlargement, repair, and repainting of existing buildings and the beautifying of the grounds. The actual number of school plants improved exceeds the number of approved projects because in some cases several schools may be grouped under one project number.

If reports from each of the ten states not yet received is up to the average of those that have been tabulated, the total estimated number of building projects approved for aid would probably exceed 17,000, with a total estimated cost of \$140,000,000, and PWA grants of \$100,000,000. The program has ex-

tended into some of the most backward and poverty-stricken rural communities where they are unable to vote bonds for the enlargement and improvement of their school plants and has, therefore, had a tendency to equalize educational opportunities.

BUILDING NEWS

♦ Waukegan, Ill. A three-story addition to the township high school has been occupied by the industrial-arts department. The building provides space for the auto-mechanics, metal, woodworking, drafting, and electrical departments.

♦ Bluefield, W. Va. The school board has considered plans for a proposed school-building program.

♦ Duluth, Minn. The board of education has proposed the construction of a junior- and senior-high-school building in the Lakeside park district, to cost approximately \$400,000.

♦ Oklahoma City, Okla. The school board has begun plans for a proposed school-building program to involve a cost of \$1,100,000.

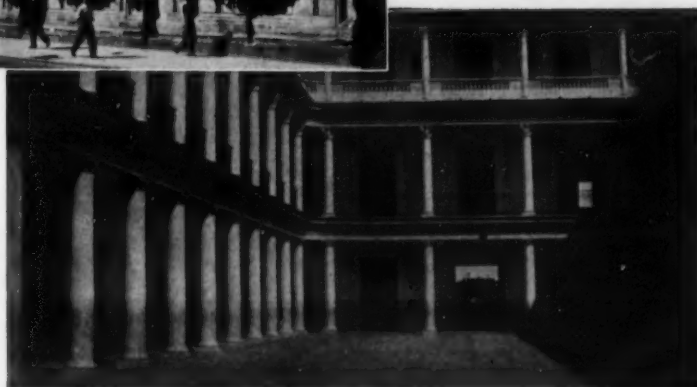
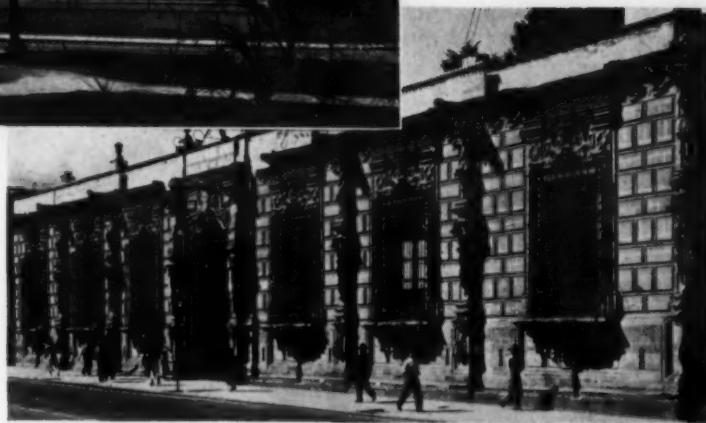
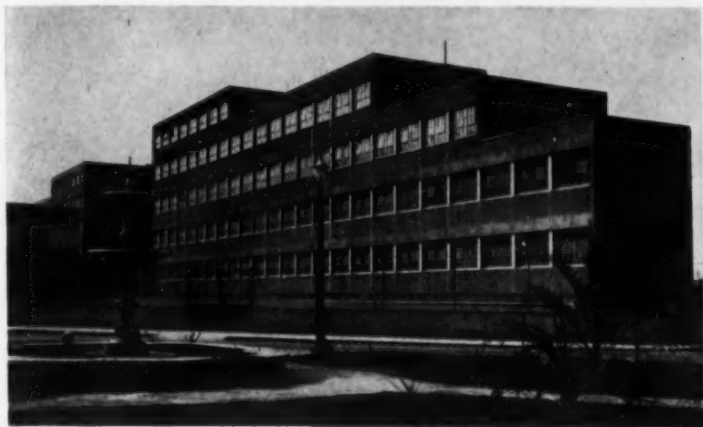
♦ Menasha, Wis. The school board has awarded the contract for the construction of a new high school, to cost more than \$400,000. The total cost, including architects' fees and necessary equipment, will be slightly less than \$600,000.

♦ Chicago, Ill. The board of education has announced plans for the erection of thirteen new schools and additions to schools, to be completed at a total cost of \$2,615,000.

♦ Enid, Okla. The board of education has received bids for the construction of additions at the Longfellow Junior High School and the McKinley elementary school, at a cost of approximately \$454,000. The buildings will be financed with a bond issue of \$250,000 and a federal grant of \$204,000.

♦ Kirkwood, Mo. The voters have approved a bond issue of \$253,000 for the financing of two grade schools and additions to four existing buildings.

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School Building News

EIGHTH ANNUAL CONFERENCE ON SCHOOL-BUILDING PROBLEMS

The National Advisory Council on School-Building Problems has announced its eighth annual conference, to be held on February 24, in New Orleans, La. The headquarters for the meeting will be in the Hotel Roosevelt.

Dr. Arthur B. Moehlman, president of the Council, will preside at the sessions. The topic at the first session will be "Next Steps." Dr. Moehlman, will discuss the subject, "How Can We Do Better Educational Plant Designing?"; Dr. David E. Weglein, of Baltimore, Md., will talk on "Planning Buildings for School and Community Use"; Mr. Robert H. Randall, of the National Resources Committee, will take up the topic, "How State Planning Boards Can Use to Superintendents in Planning Building Programs"; and Dr. George F. Zook, of the American Council on Education, will discuss "The Need of a Permanent Works Program for School Buildings."

At the afternoon session, Dr. John W. Studebaker, of the United States Office of Education, will deliver a talk. There will be a number of five-minute reports from the chairmen of the regional councils on the topic, "School-Building Progress by States—School-Building Problems That Need to be Studied."

The session will conclude with reports of the secretary, the president, and the nominating committee.

BUILDING NEWS

♦ Minneapolis, Minn. The board of education has made application for PWA money to aid in financing an \$8,000,000 school construction and improvement program. Of the total cost, approximately 45 per cent would be allotted in the form of grants, and the remainder would be

taken care of through bond issues. The program calls for the construction of three high-school buildings, additions to five high schools, five elementary schools, and additions to nine others, new coal rooms in sixteen buildings, and permanent improvements in five other buildings.

♦ Coffeyville, Kans. The board of education has awarded the contract for the rebuilding and equipping of a junior-college addition to the senior high school, at a cost of \$188,616. The building will be financed with two federal grants amounting to a total of \$136,573. The building will be completed and occupied in December, 1937.

♦ Ambridge, Pa. The Public Works Administration has approved the plans for a senior-high-school building, estimated to cost \$340,876. The building will be financed with a PWA grant of 45 per cent or \$147,000 and a bond issue of \$120,000.

♦ Arlington, Va. The board of education has awarded the contract for the construction of a junior high school in Arlington County.

♦ Atchison, Kans. The board of education has completed plans for a program of school-building expansion, to be completed at a cost of \$118,000. The program will include a new grade-school building and a junior high school.

♦ Circleville, Ohio. The school board is completing an addition to the high-school building, at a cost of \$87,000. The building was financed with the aid of a PWA grant of \$37,000.

♦ Shelby, Ohio. The voters have approved a bond issue of \$25,000 for an addition to the Central elementary school.

♦ Girard, Ohio. The citizens recently approved a school-bond issue of \$35,000 for the erection of a four-room grade school. The building, which replaces a temporary structure, will be occupied in September, 1937.

♦ Grand Forks, N. Dak. The board of education is completing the erection of a school and auditorium, at an approximate cost of \$300,000. This auditorium, which is one of the finest in the state, will seat more than 1,500 persons.

♦ Lockland, Ohio. Construction work will be started shortly on the new junior- and elementary-school building, estimated to cost \$100,000. The board has made application for a PWA grant of \$45,000 to cover part of the construction cost.

♦ Law, Mich. Construction work has been started on the new twenty-first ward elementary school, to cost \$134,000. The building will be financed with a PWA grant of 45 per cent of the cost, or \$60,390.

♦ Easton, Pa. The board of education has adopted a new plan, calling for the rewriting of one third of its school insurance on a three-year basis. Under the plan, one third, or approximately \$800,000 worth of insurance, will be canceled and rewritten on a pro-rata basis for a term of three years. Ultimately, it is expected that all of the insurance will be placed on the same basis.

♦ Lexington, N. C. The board of education has completed the erection of the Grimes elementary school, at a cost of \$110,000. The building was financed with the aid of a PWA allotment.

♦ Marion, Ohio. The board of education has completed the construction of a school stadium, at a cost of \$50,000. The building was completed and occupied in September and was developed with the aid of WPA labor.

♦ Kirkwood, Mo. The citizens recently approved a school-bond issue of \$253,000. The proceeds of the bond issue will be used in financing a school-building program, which includes two new school buildings and additions to four further buildings.

♦ Canton, Ohio. Construction work has been started on the athletic stadium for the McKinley High School, estimated to cost \$250,000. The building will be financed with a WPA grant of \$200,000, and an appropriation of \$50,000 by the school district.

♦ Dixon, Ill. Contracts have been awarded for the construction of a new grade-school building, to cost \$232,000. The building will be financed with a PWA grant of \$104,000.

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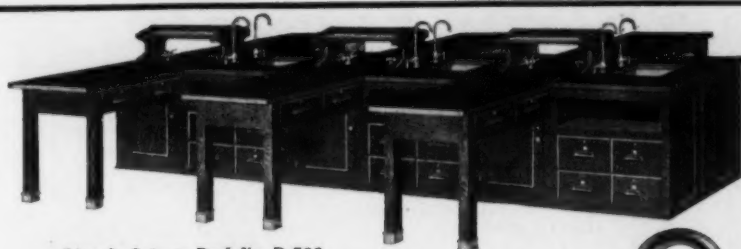
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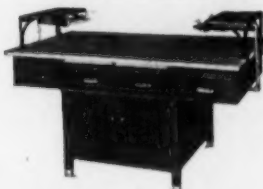
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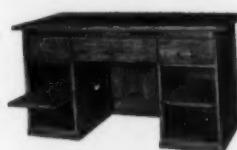
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Chemistry Desk No. D-702 (Wood)



Library Charging Desk No. BL-115



Drawing Table No. BL-94



Ever-Hold Steel Stool No. 518-24

♦ Indianapolis, Ind. Following the approval of a \$875,000 school-building program, the city school board has taken steps toward the construction of a high-school building and additions to two other schools.

♦ Gallipolis, Ohio. The board of education has completed the construction of a field house for the high school, at a cost of \$8,000. The field house contains large shower and dressing rooms and is connected directly with the high-school building.

♦ Minerva, Ohio. The board of education has begun construction of a 24-room grade-school building. It will be completed at a cost of about \$190,000.

♦ Dover, Ohio. The board of education has completed the enlargement of the Dover Avenue elementary school, from a 4-room to a 12-room structure. The building, of fireproof construction, was erected as a PWA project. It was completed in November, 1936, at a cost of \$70,000. A concrete stadium, with complete equipment, is nearing completion. It will cost \$90,000.

♦ Indianapolis, Ind. The state tax board has approved a school budget calling for \$875,000 for new school buildings. Application has been made for a PWA grant of \$200,000 to aid in the construction of the Irvington High School.

Of the \$875,000 approved by the state tax board, the school board has designated \$450,000 to be used for the construction of the first unit of the Irvington building; the sum of \$350,000 will be used for the addition to the Washington High School; and \$75,000 for new facilities at the junior high school for Negro pupils. It is estimated that the total building needs of the high schools will reach \$2,000,000.

♦ New York, N. Y. Mr. E. B. Buck, chairman of the building committee of the board of education, in reporting recently on the progress of the 1936 school-building program, called attention to the fact that up to December 1, not a single item of the 1936 building program has

been put under construction. The board has 28 items in its delayed program, calling for an expenditure of \$25,000,000. It is expected that contracts for a substantial number of them will be awarded about March 1, 1937. Another appropriation of \$30,000,000 has been requested for the year 1937, covering 40 additional projects, so that during the next year, 68 items may be put under construction, calling for an expenditure of \$55,000,000.

♦ Port Clinton, Ohio. The board of education has awarded contracts for the construction of an addition to the high school. The building, which will include additional classrooms, an enlarged auditorium, and an industrial-arts department, will be completed at a cost of \$130,000.

♦ Michigan City, Ind. The board of education is completing an auditorium-gymnasium, at a cost of \$266,366. The building is being financed with a PWA grant and will be completed in January.

♦ East Palestine, Ohio. A new high school has been completed, at a cost of \$220,000. The building was erected from plans prepared by Mr. M. T. Goodwin, of Youngstown.

♦ Jacksonville, Fla. The Duval County board of education has completed improvements to the Baldwin High School. The construction work was financed with the aid of the PWA.

♦ Sandusky, Ohio. The new Union School building was dedicated on November 20, with fitting exercises. Supt. W. O. Moore was in charge of the program, with addresses by school officials and others. The dedicatory address was made by David Creger, attorney of the board of education. An inspection of the building was made by the public, under the direction of members of the board and thirty student assistants.

♦ Ironton, Ohio. The board of education has completed plans for the construction of two elementary-school buildings under PWA auspices. One of these buildings will contain thirteen classrooms and a combination auditorium-gymnasium.

The other building will have eleven classrooms and an auditorium-gymnasium.

♦ Philadelphia, Pa. The school board has approved federal grants for the erection of a \$2,000,000 high school in the southwest section of the city. A federal grant of \$1,001,700 has been obtained.

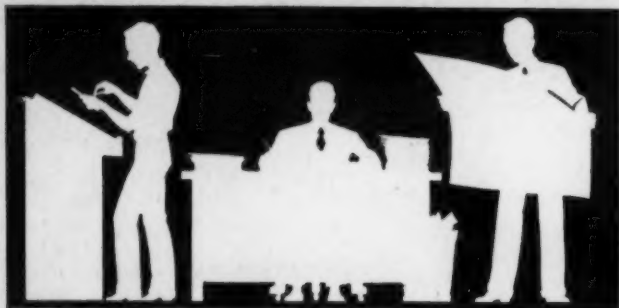
♦ Cordell, Okla. The board of education is completing the construction of two school buildings. One of the buildings is a grade school to replace a burned structure. The other is a junior high school. The construction work was financed with a bond issue, a five-mill fund levy, and a PWA grant allotted by the Federal Government.

♦ Bellaire, Ohio. The school board has completed plans for a revision of its policy of handling school insurance, to include a new plan of coverage and the distribution of the insurance to various local agencies. Under the new plan, the total insurance will be fixed at \$570,000, instead of \$70,000 as formerly was the case. It will include fire, lightning, wind, hail, explosion, and falling aircraft and will be written for two years, with one third in effect for three years, and one fourth for four years.

♦ St. Louis, Mo. The board of education has filed a demurrer to an injunction suit, brought by Negro organizations in the courts to halt the board's plan for the construction of a Negro school on the Vashon High School grounds. The organizations oppose the board's selection of the site on the ground that the high-school property is already overcrowded and that the schedules of the two school groups will conflict to the detriment of both.

♦ Palo Alto, Calif. Construction work has been started on the David Starr Jordan Junior High School, estimated to cost more than \$300,000. The building, which will contain 28 classrooms in addition to an auditorium, a gymnasium, and a cafeteria, will be completed ready for use in September, 1937.

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School Board News

ILLINOIS SCHOOL OFFICIALS HOLD SUCCESSFUL CONVENTION IN SPRINGFIELD

The twenty-third annual convention of the Illinois State School-Board Association, held at the Abraham Lincoln Hotel, Springfield, November 19 to 21, was one of the most successful in the history of the association. One hundred and fifty-six schoolboard officials, fifteen speakers, and guests were in attendance.

Mr. Leo W. Chulock, president of the association, presided.

The guest speaker was Dr. Clyde B. Moore, of Ithaca, N. Y., who spoke on the subject, "School Boards and the American Schools," in which he stressed the fact that the legal objectives of the American school system is good citizenship, and the responsibility of the school board is to provide able and unbiased leadership, opportunities for study and investigation, and a full expression of ideas derived from thoughtful study. He stressed that a board of education within its jurisdiction must assume a lay leadership and must formulate potent general policies, charting in general outline the way of the educational life of the community and courageously sustaining the morale of all concerned in the educational welfare.

Other speakers on the program were Mr. Robert C. Moore, of Springfield, who dis-

cussed "Our Common Problems"; Mr. Floyd I. McMurray, of Indianapolis, Ind., who talked on "The School Transportation Problem"; Mr. John V. McGovern, of Chicago, who discussed the topic, "School Accounting"; Mr. William M. Burbridge, of Decatur, who stressed "Co-ordinating Forces for Child Safety"; and Dr. C. P. Slater, of Urbana, who talked on "Problems of Business Management of Schools."

The annual reports of the secretary and the president were presented, in addition to reports on Recent Legislative Results of Interest to School Officials and on The Status of Litigation Concerning the Apportionment of Common-School Fund of Illinois.

The high point of the program was the joint annual banquet of the school-board officials and superintendents on Thursday evening, November 19. Mrs. Gertrude Williams, of Normal, spoke on "Co-operative Relationships in Educational Interests," pointing out how often parents and board members do not co-operate with the teacher and fail to understand her viewpoint.

A sound film, "Bound to Last," depicting the processes of printing and binding books, was presented by the Binders' Board Manufacturers' Association of New York City.

The association adopted a number of resolutions. The resolutions urged co-operation in increasing membership and in selling adver-

tising for the School Board Bulletin; urged closer co-operation between the School-Board Association and the Superintendents' Association, and the Illinois Teachers' Association; and voted to confer an honorary membership on Mr. W. F. Gurrie for outstanding work in increasing the association membership.

The association elected the following officers for the next year:

President, Mr. B. B. Voris, Waterloo; secretary, Mr. A. D. McLarty, Springfield; treasurer, Mr. H. H. Coe, Springfield. — A. D. McLarty.

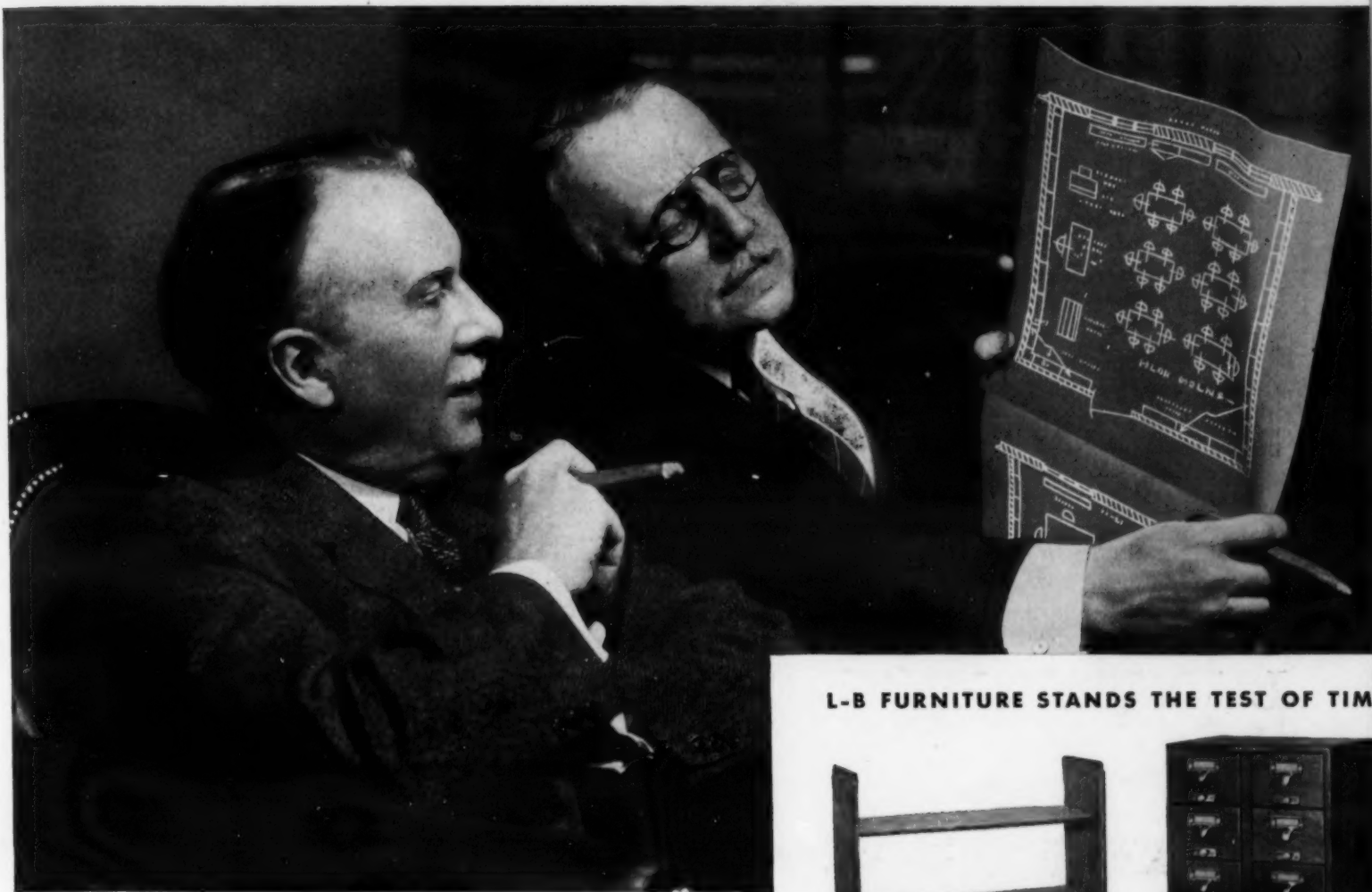
PROBLEMS AND ACCOMPLISHMENTS IN SCHOOL DISTRICT NO. 170, CHICAGO HEIGHTS, ILLINOIS

Summarizing accomplishments of the public-grade-school system of Chicago Heights, Illinois, during the past year and reciting some of the most urgent problems still to be met, Supt. Ben A. Sylla, in his annual report to the board of education, gives some of the highlights to be noted.

The report contains a frank statement that the standard of teachers' salaries should be promptly increased. Mr. Sylla points out that the present salary level, which is below that of most near-by districts, will inevitably deprive the Chicago Heights system of its most efficient instructors. Whereas in 1925-26 no teacher was paid less than \$1,000, in the year 1935-36 forty-six or almost one half of all teachers received less than \$1,000. Similarly, while more than one half of the teachers were paid \$1,200 or more ten years ago, only nine received salaries in excess of that amount in 1935-36. Last year, the minimum salaries were \$213.75 lower than ten years ago, and the maximum salaries were \$320.63 lower, the reduction in each case being 21.37 per cent.

(Concluded on page 76)

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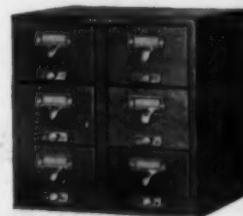
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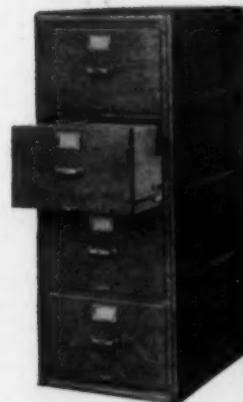
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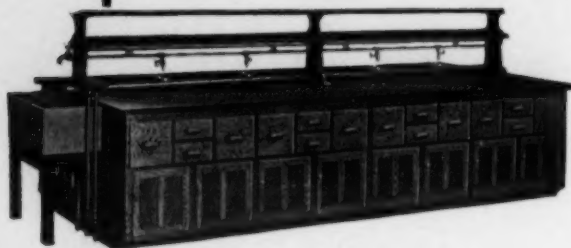
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(Concluded from page 74)

Because of the effects of the salary schedule from 1926 to 1931, which provided for an automatic increase of \$50 each year for teachers who remained in the system, the difference in average salaries between last year and ten years ago was only \$200.38, or 16.55 per cent. The school district is at present unable to compete with other schools for the best teachers. Well-trained, inexperienced beginners must be employed, and these leave after a year or two of experience.

ORRVILLE'S PROGRESSIVE POLICIES

The board of education of Orrville, Ohio, together with Supt. R. E. C. McDougall, has closed a progressive as well as active year in the administration of its school system. The departments engaged in include the following:

A raise in salaries of all employees by five per cent; a reorganization of the curriculum, courses of study being outlined by appropriate teachers' committees; the purchase of equipment for visual instruction; the purchase of the largest amount of athletic equipment in the history of the school; map equipment placed throughout the fifth to the twelfth grades inclusive; adequate equipment added to commercial department. A special committee is at work outlining a course for the commercial department.

The board of education has authorized the publication of a directory of all school officials and employees. It has also adopted an extensive testing program, applying both to intelligence and achievement. The board has also manifested an interest in music instruction, providing additional instruments and enlarging both band and orchestra in the high school.

The board of education is made up of the following members: President, Harold Ellsworth; vice-president, W. E. Longshore; clerk, V. A. Schantz; Dr. F. L. Phillips, and H. L. Zimmerman.

NEW YORK SCHOOLS TO BROOKLYN

The New York City board of estimate has approved a resolution, calling for the removal of the school-administrative headquarters from Park Avenue and Fifty-ninth Street, to the Elks Club Building, on Livingston Street, between Schermerhorn Street and Boerur Place, in Brooklyn borough.

The estimated cost of the Brooklyn site is \$950,000, of which \$550,000 in back taxes will revert to the city. Officials of the board of education have estimated that it will cost approximately \$350,000 to put the building in shape for occupancy by the school-administrative staff. There are 650 employees and officers in the present building, but with the centralization of the various bureaus and departments now scattered in the several sections of Manhattan, there will be approximately 2,500 employees and officers in the new building.

OHIO SCHOOL-BUSINESS OFFICIALS MEET IN COLUMBUS

The school-business officials of Ohio held their first meeting in Columbus, on November 20 and 21.

At the first session the association took up the subject of a retirement plan for board-of-education employees who are not members of the state retirement association. Mr. T. C. Holy and Mr. B. A. Stevens, of Columbus, discussed "The Present Trends in School Financing in Ohio."

At the second session on Saturday morning, Mr. D. H. Sutton, of the State Education Department, talked on the subject, "The State School Foundation Program."

It was voted that the officers and executive committee seek to stimulate interest and enthusiasm in bringing the proposed bill of the Ohio State Employees' Retirement System to the attention of the nonteaching employees of the sev-

eral school districts and to the responsible heads of the city and county governments.

The meeting closed with the election of the following officers and executive-committee members:

President, Mr. L. D. Shuter, Columbus; vice-president, Mr. M. M. Konarski, Akron; secretary, Mr. W. V. Drake, Columbus; treasurer, Mr. R. W. Shafer, Cincinnati.

Executive Committee: Mr. S. R. Creps, Youngstown; Mr. W. P. Ridenour, Portsmouth; Mr. R. S. Wenzlau, Toledo; Mr. W. H. Koester, Piqua; Mr. T. J. Deringer, Cleveland.

INTERESTING IMPROVEMENTS IN LORAIN, OHIO

The board of education in Lorain, Ohio, has not been idle during the past school year but has made the most of every opportunity for improving the school facilities and for providing pupils with the maximum in educational offerings. During the year the board, with the aid of the WPA, was able to provide an auditorium for five of the old school buildings. The sanitary facilities were modernized in six buildings. New floors were laid in a number of the buildings. All but one of the elementary schools now enjoy the advantages of an assembly room.

During the year, the board organized and placed in operation a special school for children in the 15- to 17-year group who do not fit easily into the regular school program. The classes are housed in one of the old buildings where a number of vacant rooms were available.

In this same building, the board has provided facilities for classes in auto mechanics, carpentry, forging, sheet-metal work, household mechanics, and radio. The program also includes such courses as health and physical education, music, English, citizenship, and mathematics.

In all of its work, the school seeks to discover the interests and abilities of these boys and endeavors to help them form desirable character traits which will make for good citizenship.

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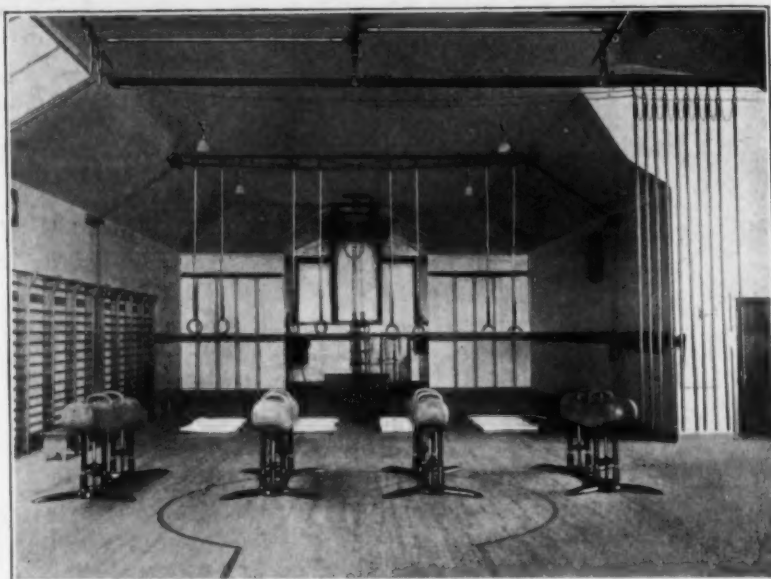
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A SCHOOL-INSURANCE PROGRAM

The New York State Association of School Boards Outlines Principles and Practices

The first report of the Insurance and Bonding Problems Committee of the New York State School Boards Association defines the fundamental objective of a school-insurance program as, "so arranging a school's insurance affairs that the property will be adequately insured at correct rates and the school premises may be safe for the school population." In other words, the committee holds that insurance is necessary and that in the development of an insurance program, perils to the pupils and teachers should cease, possible losses should be avoided, knowledge should replace ignorance, and the casual, occasional, and superficial considerations of insurance matters should give way to careful, systematic, and long-term planning. "School boards that will take the time to put their insurance affairs on an intelligent program basis will receive therefrom big dividends, paid in some or all of three different ways—in terms of reduced insurance costs, maximum safety for children and teachers, and assurance that their responsibilities for property losses, also liability and property-damage claims, are fully protected by proper forms of insurance properly written."

The present study takes up the various forms of losses which may be covered by insurance, including school busses, boilers, burglary; damage to buildings caused by fire, windstorm, hail, explosion, riot, earthquake, lightning, etc. The special aspects of workmen's compensation insurance, statutory bonds for school officials, sports-team accidents, and other hazards are taken up. The study suggests the types of coverage and the amounts of insurance desirable under varying conditions.

Under the New York state law, the school trustees and board members are not liable for torts of their employees, teachers, and janitors. The report, however, makes clear what these liabilities of teachers, etc., are, and what protec-

tion the school board may provide the school district and the teachers. The committee takes the position that "since the teacher's responsibility for the safety of pupils is enormously increased by the many activities taking place outside the school proper during and after school hours, that insurance policies should be made more inclusive."

The report suggests many practical and economical procedures for placing insurance, selecting the companies, obtaining appraisal service, conserving school buildings by better fire protection and more thorough prevention policies. A final series of paragraphs suggests administrative policies for preventing accidents on school premises. It is to be regretted that the study does not take up building construction factors which reduce insurance premiums that it overlooks the possibilities of self-insurance in larger school systems. Included in the booklet are a standard form of fire-insurance policy and a useful self-inspection blank.

The report is sold at cost by the Association and may be had by addressing the secretary, Mr. W. A. Clifford, 9 South Third Ave., Mt. Vernon, N. Y.

AUTHORITY OF SCHOOL HEAD IN NEW YORK CITY UPHELD

The New York Board of Superintendents, through its law committee, has recently rendered an opinion, in which it upholds the authority of principals in the New York City schools in their respective schools. The case involved a teacher in a city high school who declined to carry out the instructions of her principal in a teaching experiment. The result was that he rated her adversely, whereupon she appealed to the board of superintendents.

In September, 1936, the board upheld the principal, Mr. Robert B. Brodie, of the Seward Park High School and early in December made public its decision. The board in approving the ruling of the law committee, laid down the course which a teacher should follow if she feels ag-

grieved about an administrative order she receives from a superior. This formulates the rule that, unless an order is immoral or illegal, the teacher must obey it pending a determination of her appeal.

The report points out that the evidence submitted amply justified the principal in the citations which he gave. The appellant seemed to be of the opinion that she might refuse to obey the orders of the principal and do as she thought right, whenever she disagreed with the principal.

Under the ruling, the principal must be upheld as the administrative and executive head of the school, and the teacher is bound to obey his orders, until these are set aside by a higher authority.

PROGRESS MADE IN MARION, OHIO

The board of education in Marion, Ohio, has introduced a new program in child accounting. A visiting teacher has been added to the staff, beginning with the school year 1936-37.

One of the problems of the year has been the provision of shoes and clothing for persons on relief. Various agencies in the city have cooperated in meeting these needs. It is expected that by the end of the year, the per cent of attendance will be improved over what it was in past years due to the new social services available.

A new program in instrumental music has been established, under the direction of Mr. H. E. Huffman. The director devotes full time to the work. Two bands and an orchestra have been organized.

Tests in reading for all first-grade children were conducted early in the school year as a means of devising a remedy for first-grade failures. As a result of the tests, it was shown that 21 per cent of the children enrolled were incapable of learning to read this year. The majority of this 21 per cent were in evident need of a special program to overcome their deficiency. Already the first steps have been taken to solve this problem which is clearly one of the most important.

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Revision of Constitution Recommended to Department of Superintendence

Paul C. Stetson¹

At the meeting of the Department of Superintendence, at St. Louis, in February, 1936, the Committee on the Longer Planned Program presented an exhaustive report in accordance with the instructions given it at the meeting of the Department, held in Atlantic City, in 1935.

This report involves changes in the constitution and bylaws and therefore had to lie on the table for one year. It is to the changes in the constitution and bylaws that the Committee now directs your attention.

There are a number of minor and one or two major changes suggested for the present constitution and bylaws. The latter would change the name of the organization and the procedure in the election of the president.

The change in the name of the organization is recommended because the present name is awkward. There is great difficulty in making people understand that the name is the Department of Superintendence, not Superintendents. This might be a minor matter were it not for the fact that it is a source of confusion in newspapers, magazines, and to its own members. The most serious objection to the present name, however, is that it does not indicate the national scope of the organization. The layman expects such terms as "National" or "American" when the scope of the organization is national. Therefore, when the general public reads about the Department of Superintendence it immediately comes to the conclusion that this is only a subdivision of the National Education Association and that its concern is, therefore, with minor and local issues.

When I was president of the Department I constantly explained to outstanding citizens, whom I invited to appear on the program, that the term "Department of Superintendence" was a technical name for the national association of school superintendents. As soon as they realized that I was talking about a national association, these men and women of big affairs and of wide interests were interested.

The chief reason for retaining the present name is a sentimental one. It does have a wealth of meaning for those of us who have been intimately associated with it so long. A new name, however, rapidly will acquire this and it will indicate properly and at once the scope of our organization.

It is interesting to note that the name of the organization has been changed three times. From 1865 to 1870 it was called *The National Association of School Superintendents*. From 1870 to 1907 it was called *The Department of School Superintendence of the National Educational Association*. From 1907 to the present time it has been *The Department of Superintendence of the National Education Association*.

Therefore our committee recommends that

¹The present document is a report of Superintendent Stetson as chairman of the Committee on Longer Planned Program of the Department of Superintendence, and will be presented in connection with the complete report of the committee at the meeting of the Department, in New Orleans, in February next.

the amendment proposing the name *The American Association of School Administrators—A Department of the National Education Association* be ratified.

The amendment to Article V is extremely important and should have the careful consideration of every member.

This change is suggested because we desire so far as possible to obviate the tendency toward active aggressive candidacies for the office of the presidency. The presidency of this organization is one of the most important educational offices of its kind in the United States and should be filled only by men who represent the actual choice of the convention, who are sought by the convention, and whose records are such as to assure its conduct in accordance with high professional standards.

Briefly, the amendment proposes that the election of the president shall be conducted by mailing to all of the active members an annual preferential ballot. The first ballot is a primary preferential ballot which calls for three names designated as first, second, and third choices. The names of the five persons receiving the highest number of votes in this primary ballot will be submitted in the final ballot on which the active members will again indicate their first, second, and third choices. The primary ballot will be mailed on October 1, and returned not later than midnight October 21. The final ballot shall be mailed not later than December 1 and returned not later than December 21. The person who receives the preferential plurality in the final ballots shall be declared by the Executive Committee elected president.

One of the objections to this method is that under it only those who are members for the current year may vote. For example, if the system were in effect now, only those who were members in 1936 could ballot for a president who will serve in 1937 and 1938. This objection lacks force because the committee desires to have a type of election machinery which will prevent "loading" the convention just prior to election with those whose only purpose in registering is to vote for a certain candidate. While this has not been done so often for president, it has frequently been done in the case of members of the Executive Committee. This is a dangerous tendency and one which the proposed amendment effectually stops.

The committee believes that this plan insures that no group can control the election at the convention; that no one candidate will be favored; and that it will essentially be the most democratic method.

The election of the president prior to the annual meeting of the organization, in February, will effectually remove any presidential politics from the annual meeting of the association.

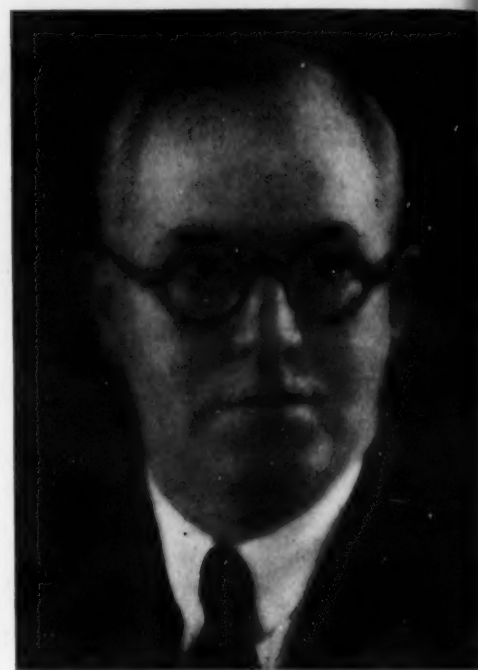
The other changes recommended in the constitution and bylaws are for the purpose of making certain provisions in these instruments conform with actual practice.

The committee urges that the members carefully study the present constitution and bylaws and the proposed constitution and by-

MR. FRANK PICKELL DIES

Mr. Frank G. Pickell, superintendent of schools at Montclair, N. J., since 1923, died suddenly at his home on November 26. He was 51 years old.

Mr. Pickell was born in Bicknell, Ind., Aug. 31, 1885. He was graduated from Vincennes University, Indiana University, and Teachers College, Columbia University, and was given degrees by these institutions.



Frank G. Pickell

He began his educational career as a teacher in Oakton and Wheatland, Ind. Later he went to Evansville, and from there he went to Richmond. After filling a position in Lincoln, Nebr., he went to Cleveland, Ohio. He resigned from that position in order to accept the superintendency in Montclair.

He was an active member of the N.E.A., and was a member of the Committee on Co-ordination of Research Agencies.

laws; and that they attend the business meeting at which these will be presented for final adoption or rejection.

The committee, after carefully studying the entire situation during this year, is still unanimously of the opinion that the adoption of the proposed constitution and bylaws is for the best interests of our organization.

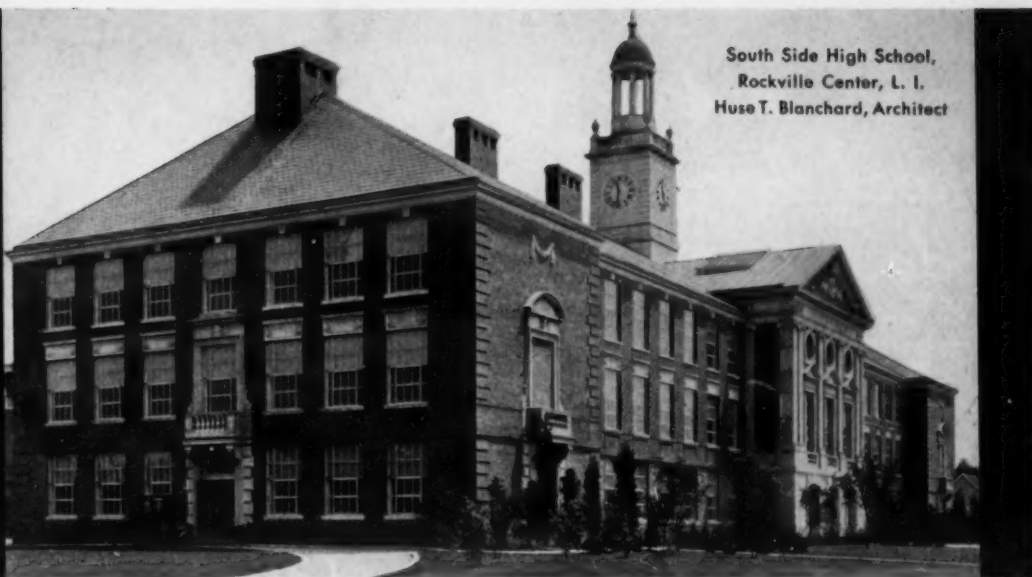
SCHOOL SUPPORT FROM VEHICLE TAXATION

The disposition of receipts from taxation on highway users throughout the United States, as reported by the United States Department of Agriculture, notes that a small proportion of such receipts go to the support of the schools. The report shows by states the tribute derived from fuel, motor-carrier, and motor-vehicle receipts. The total amounts to \$30,773,143.

Only seven states divert any of the income from the taxation of highway users to the support of education. Among these Ohio leads, with \$9,467,003; Texas comes next, with \$8,290,061; Florida, \$4,409,557; Illinois, \$3,703,953; Georgia, \$2,615,477; New Jersey, \$1,332,500; and Louisiana \$934,592.

In the light of the fact that the total income in the year 1935, derived by the 48 states from gas and vehicle taxation, amounted to \$950,971,156, the sum set aside for education is deemed comparatively small.

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School Administration News

SUBSTANTIAL PROGRESS MADE IN PERRYSBURG, OHIO

The public schools of Perrysburg, Ohio, have made marked progress during the school term which closed in December.

The salaries of members of the teaching staff were raised 10 per cent for the new school year. A bonus amounting to 7.1 per cent was paid to teachers last June. During the summer, a school renovating program was undertaken, with a number of changes made in buildings and equipment.

A new course in general shop work was established, new courses in woodworking, electricity, ceramics, forging, and sheet-metal work were inaugurated. Home economics and shopwork were extended to the grades and new equipment was provided. A health program was inaugurated, with the employment of a school nurse under WPA auspices. Systematic health examinations are given regularly in the elementary schools, and health instruction is carried on by the nurse.

New courses in dramatics and journalism have been added to the course of study.

New report cards have been placed in use in grades one to eight. These cards seek to measure the child's progress in terms of his ability and they include the marking and measuring of traits relating to citizenship, health habits, and information to parents.

PHILADELPHIA BEGINS SURVEY OF SCHOOLS

The board of education of Philadelphia, Pa., has approved a resolution of the survey committee, providing for a survey of the public-school system and naming the persons who are to

participate. The administrative organization will be in charge of Dr. Ralph D. Owen and Dr. George A. Works, assisted by Mr. D. E. Crosley. Specialized problems closely related to one or more of the several phases of the survey will be handled by experts appointed to have charge of these matters. Dr. Theodore Reller will have charge of the study of school finance and business management under Dr. LeRoy King.

In addition to the survey staff, which will be responsible for the assembling of data and making appropriate recommendations, arrangements have been made for a reviewing committee before which all major recommendations will be discussed. In addition to the director of the survey, this committee will include the following members: Mr. H. S. Weet, of Rochester, N. Y.; Mr. D. E. Weglein, of Baltimore, Md.; and Mr. A. B. Meredith, of New York University.

A number of tentative outlines covering the work of each of the sections have been prepared. These outlines include a statement of the purpose of the survey, a statement of the relations between the survey staff and the educational staff, the relations between the survey staff and the business-management staff, an outline of the financial problem, procedure to be used in the data gathering, tentative lists of projects in secondary education, general organization demands, outlines of study of the normal school, etc.

Work has already begun on a study of classroom conditions. A study is being made of the relationship of the principal to the central office. A considerable body of data has been gathered on school costs, tax rates, and state apportionments.

The members of the survey committee will hold frequent meetings for the discussion of the various phases of the survey and will work closely with the members of the survey staff.

The survey committee comprises Mr. S. S. Cohen, Mr. W. B. Saul, Mr. A. L. Lingelbach, Anna Lane Lingelbach, and Ada H. H. Lewis, chairman.

NEW REPORTING PROCEDURE IN FREMONT

In the public schools of Fremont, Ohio, a good deal of attention is being given this year to judging the progress of pupils in terms of their own ability. In the elementary grades a new kind of report is being used for the first time, which aims to give a clearer idea of the progress of pupils and enables the teacher to determine the ability level or working level of the individual child. The card is divided into two sections. The upper part is devoted to the ranks and credits in the several subjects. The lower part is given over to the markings for social qualities, attendance, and tardiness.

The back of the card contains an explanation. Allowance is made for students who show natural strength or inherent weakness in certain subjects, and allowance is made for initiative and perseverance in establishing the grade-level line.

In the high school, a special graph type of card is used, in which the maturity level of each student is plotted for each subject. A red line is drawn through the letter representing his working level, and his achievement is plotted on the graphed record sent to parents. The card has been tried out extensively and is now being used in the upper four grades of the high school. In general use, the card has a tendency to force the bright pupil to work up to his capacity, while the poor student is given credit for his mental accomplishment.

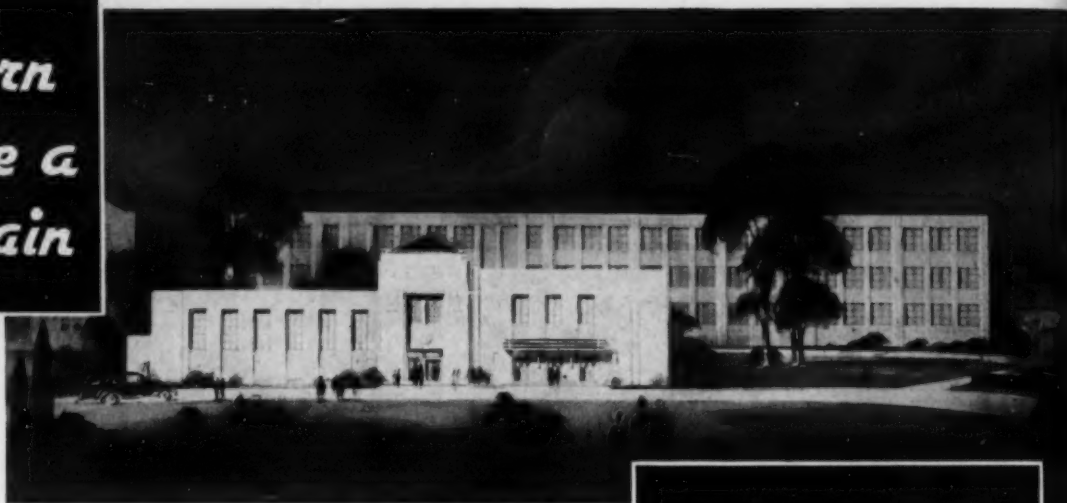
SCHOOL PROGRAM EXTENDED

Manual training and home economics have been reintroduced into the elementary schools of Portsmouth, Ohio, after having been discontinued for five years. Kindergarten classes have not been re-established. A course in public speaking has been added to the English course in the high school and a dean of girls and a counselor for boys have been employed. A new system of reporting the progress of pupils has been installed on a trial basis in all of the schools.

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FARGO ELIMINATES MID-YEAR PROMOTIONS

The board of education of Fargo, N. Dak., eliminated during the past year, the old-time practice of mid-year promotions in the elementary schools. A committee consisting of Mr. George A. Soule, Mr. Frank H. Scott, and Mrs. W. F. Baillie entered into a study of the subject and recently submitted a report on its findings. The committee in summarizing the serious aspects of mid-year promotion says:

1. The number of lesson preparations on the part of teachers is doubled.
2. The time allotted each class is cut in half.
3. Many classes recite only two or three times a week.
4. Penmanship, spelling, and health instruction are deprived of time which their importance deserves.
5. Pupils must go through two readjustment and warming-up periods each year, instead of one.
6. The effect on the first-grade mid-year entrant is especially bad.
7. Poor grading is necessitated in music, art, and physical education.
8. The individual is lost sight of in the haste of operating a schedule.
9. The plan complicates the junior-high-school schedules, by necessitating the organization of relatively small half-year classes.

For these reasons, the committee recommends: (1) That first-grade pupils be admitted in September only in the public schools during the school year 1936-37, and in the years thereafter; (2) that pupils be admitted in any September if they will become six years of age on or before March 1 of the following calendar year, instead of January 1, as at present; (3) that the superintendent be given full authority to put this change in policy into effect."

Thus after twenty years of use the semi-annual promotions have given way to annual shifts of class groups.

ANN ARBOR BEGINS CONTINUING SELF-SURVEY OF SCHOOLS

The board of education of Ann Arbor, Mich., has appropriated \$5,000 for the financing of a continuing self-survey of the public-school system. The survey will be conducted under the direction of Supt. Otto W. Haisley, assisted by Prof. A. B. Moehlman and Prof. Clifford Woody, of the University of Michigan, as consultants.

The survey will be divided into six areas, each area representing a center of interest. These include the following: A community or social survey; an instructional survey; an administrative survey; a school-plant survey; a financial survey; and a community education program.

EAST AURORA CARRIES OUT TESTING PROGRAM

The testing of school children has become quite general throughout the country and as a result norms have been established by grades so that a school system may compare the results of its work with other schools. Such tests are diagnostic in character and enable the teacher to determine the strengths and weaknesses of particular pupils; they permit the teacher to improve her teaching and reveal individual differences so that the teacher can make allowances for them.

The public schools of East Aurora, in their work do not make a fetish of testing but they do use such tests to find out the weak places and to improve the character of the instruction given. In general, it is noted in the 1935-1936 school report that the East Aurora pupils attain much higher scores than the national norms for the test. Recently, complete tests were given to all primary grades in reading and arithmetic. The Gates reading test was used in the first and second grades and the Stanford tests in arithmetic and reading in the third and fourth grades. The summaries revealed that children in the first and second grades read so well that the tests

for these grades appear too easy. In the third and fourth grades also, the children appeared to do better than the standard grade scores. The results in arithmetic were surprising because no formal arithmetic training is given until before the third year. With increased emphasis on the informal teaching of the meaning of numbers in the kindergarten and first grades, a better foundation is laid for arithmetic and the results are satisfactory.

In the tests conducted for the upper grades, using the Iowa test for basic skills, the children of East Aurora tested considerably higher than the average of children from 240 school systems. The only place where the East Aurora children scored below the average was in the comprehension of maps. In parts of the test pupils fell below the average in 1935-36.

In the eighth grade, each year, the high-school mathematics department gives the Orleans Prognostic Test just before the end of the year. It is used to determine each child's ability from year to year and generally arithmetic review is needed before taking algebra. Although no set norms are available for this test, it was shown that only the upper fourth of most classes has a range of 120 and over. More than one half of the classes scored above 120, which indicated that East Aurora eighth-grade scores are about a fourth better than the general average.

New Projects in Logan, Ohio

The board of education in Logan, Ohio, with the aid of the PWA administration, has completed the erection of a school stadium. New physics laboratory equipment, comprising furniture and apparatus, was installed during the year, at a cost of \$1,500. The board is sponsoring a project, calling for the construction of a swimming pool, at an estimated cost of \$53,000.

A full-time art instructor has been employed in the schools for the first time this year. An opportunity room was reopened this year after having been suspended for several years.



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NEW YORK CITY SCHOOLS HAMPERED BY CROWDING DUE TO SHIFTING POPULATION

The shifting population of New York City, resulting in classroom congestion, has been practically the controlling factor in determining public-school policies, according to a report made recently by a joint committee on problems of school maladjustment, headed by Mr. James Marshall, vice-president of the board of education.

The report, which consisted of 200 pages of tables, graphs, charts, and explanatory matter, was prepared by the Bureau of Reference, Research, and Statistics. During the period of 1890 to 1934, according to the report, the city's population trebled, increasing from 2,500,000 to 7,500,000. From 1900 to 1934, the school population increased at an average rate of 20,000 children a year, rising from about 420,000 to 1,105,000.

It is pointed out in the report that the shifting of population from the central areas to the outlying communities, has left partly empty school buildings in old neighborhoods and has created overcrowding in the new.

In general, the factor of suggestion had exerted a controlling effect upon the school development in its various phases and had influenced greatly the specific problem of maladjustment. The problem of providing new accommodations for a rapidly growing school system has been the leading problem since the consolidation of the city boroughs.

"One of the effects of the moving of the city's population from central to peripheral areas has been the development of substandard sections in the previously congested areas which lost population," the report says.

"Studies that have been made of the areas in which the greatest concentration and the highest rates of delinquency are found show that such

areas have many characteristics which differentiate them from outlying residential communities. These areas are in the process of transition from residence to business and industry and are characterized by physical deterioration, decreasing population and the disintegration of the conventional neighborhood, culture and organization."

The moving population, the report points out, has had a threefold effect:

"1. It has made many times more difficult the problem of providing building facilities to meet the school needs of the city. As soon as an area had been adequately provided for, the shift of population left behind empty seats, and at times almost empty buildings, and created new areas of congestion.

"2. It has placed extra burdens upon other phases of administration and required the constant reorganization of schools, the formation of new classes, and the consolidation of old classes, the transfer of teachers and frequently created new problems of pupil transportation and the like.

"3. Lastly, it has had its effect upon the school progress and success of the pupils involved. Transfer from one school to another, particularly in the middle of the term, is frequently followed by maladjustment." Nonpromotion is a common result.

The age of school buildings has caused further complications, the report shows. Of the existing buildings 25 per cent were built prior to 1894. 50 per cent prior to 1906, and 25 per cent since 1923.

HOW LA CROSSE MANAGED "EDUCATION WEEK"

If the school authorities of La Crosse, Wis., managed their American Education Week with exceptional success, it is because they won the wholehearted co-operation of the public press, the commercial, civic, and social clubs. More than 5,000 citizens visited the schools and pride

in their achievements was raised to a considerable degree.

Superintendent G. M. Wiley, and the several school principals, extended cordial invitations to the public to visit the schools. The press brought out special editions, and in word and picture told what the schools were doing. The school publication presented portraits of the faculty, provided school exhibits, and programs of music, orations, and drama, designed to interest the public. Every school, high and elementary, made its contribution to the success of the week, and in doing so made friends for the school system.

ARMISTICE DAY AT NEW CASTLE, DELAWARE

The board of education and the school staff of the William Penn School, in New Castle, Pa., sponsored an Armistice Day Program, which was held on Wednesday evening, November 11, in the school auditorium. The program which was also part of the observance of American Education Week, was under the personal direction of Supt. Samuel E. Burr, and was open to the general public.

The program included musical selections, community singing, and addresses by the mayor of the city, the superintendent of schools, and others. A pageant, "Unknown," was given under the direction of Mr. Harry W. Lawrence and Miss Myrl A. Gould.

On Friday evening, October 23, a Melody Minstrel was given by the local Legion Post.

DEDICATE NATATORIUM IN WINNETKA, ILLINOIS

The New Trier Township High School natatorium, at Winnetka, Ill., was opened on October 16, with a program of dedication and an open house for the general inspection of the school buildings. The program included an address by Mr. A. R. Peterson, president of the board of education.



Light weight panels, faced with cork-board on one side, black-board on the other, may be brought into easel position on folding brackets as shown. Each leaf is independently adjustable and reversible.



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Personal News

DR. FRED ENGELHARDT BECOMES UNIVERSITY PRESIDENT

Professor Fred Engelhardt, of the department of educational administration in the University of Minnesota, has been appointed president of the University of New Hampshire. Dr. Engelhardt, who succeeds the late Dr. E. M. Lewis, will take over the office in the spring.



Dr. Fred Engelhardt

Professor Engelhardt, who was born in Naugatuck, Conn., April 15, 1885, received his education at Yale and Columbia Universities. Following his graduation, he was an instructor at Yale in 1908 and 1909, principal of the Alton Military Academy from 1909 to 1911, and principal of the Malone, N. Y., schools from 1911 to 1916. In 1916 he became head of the department of science at the William Penn Charter School, in Phila-

delphia. He was director of the bureau of administration of the Pennsylvania state department of instruction from 1919 to 1922. From 1922 to 1924 he was acting dean of the college of liberal arts in Pittsburgh, from which he resigned in 1924 to become professor of educational administration at the University of Minnesota.

He has been professor on the summer-school faculties of the University of Pittsburgh and Peabody College, inspector for the elementary schools of the State of New York, and a specialist in secondary education for the United States Office of Education. He is the author of a series of textbooks in mathematics for secondary schools and has written numerous books on the subject of school-business administration.

Dr. McAndrew Honored

The Associated Exhibitors of the National Education Association has announced the winner of the American Education Award for the year 1937. Dr. William McAndrew, well-known schoolman and former school official, has been selected for the award, which is given for his qualifications and outstanding educational achievement.

PERSONAL NEWS

• MR. CARL V. WARREN, formerly principal of the high school in Skaneateles, N. Y., has become superintendent of schools in Massena. Mr. Warren succeeds E. C. Simmons, who has gone to Cortland, N. Y.

• MR. ULYSSES G. WHEELER, former superintendent of schools in Newton, Mass., died recently at his home. He had been superintendent in Wakefield and Everett, Mass., and in Passaic, N. J. He was superintendent of the Newton schools from 1914 to the time of his retirement.

• MR. H. L. SAMS, of Williamsport, Ohio, has been elected president of the Western Ohio Superintendents' Round Table.

• MR. JOHN B. GOODWIN has been appointed as technical associate of the financial advisory service of the American Council on Education, in Washington, D. C. Mr. Goodwin will work under Mr. Lloyd Morey, chief consultant of the financial advisory service.

• MR. H. P. FRANK, formerly principal of the high school at Mayfield Heights, Ohio, has become superintendent of schools. He succeeds Mr. W. L. Schuman.

• MR. W. M. WESLEY, of Harlan, Ky., has been elected superintendent of schools at Grayson. He succeeds L. P. Jones.

• SUPT. G. C. FRANCIS, of Chelsea, Mass., was tendered a testimonial reception and banquet on December 2, in honor of the completion of his tenth year as head of the local school system. Mr. Leo P. Casey, of the Shurtleff School, Chelsea, was toastmaster. The speakers in-

cluded Dean Jesse Davis of Boston University; Mr. M. Norcross Stratton of the state education department; Mr. Farnsworth Marshall of Malden; Mr. W. J. Hendry, president of the Chelsea school board; and Mayor Edward J. Voke.

• MR. C. E. ANDERSON, of Pemberton, Minn., has been elected superintendent of schools in Morgan. He succeeds W. S. Johnson.

• MR. M. T. NODLAND, of Stratford, Iowa, has been elected superintendent of schools in West Union. He succeeds R. W. Esslinger.

• MR. GEORGE CAMPBELL has been elected superintendent of schools in Windsor, Ont., Canada.

• MR. E. O. LUNDBERG, of Ceresco, Nebr., has been elected superintendent of schools in Stanton, Iowa. He succeeds E. A. Nelson.

• MR. ELLSWORTH D. FOSTER, educator and author, died suddenly of a heart ailment at his home in Chicago, on November 7. He was 67 years of age. Mr. Foster was engaged in editorial work since 1906. He was a former superintendent of schools in Coloma, Mich.

• MR. HENRY E. KENTOPP, formerly principal of the Elmwood School, in East Orange, N. J., has been appointed acting superintendent of schools, to succeed the late C. J. Scott. Mr. Kentopp, who went to East Orange as principal of the Elmwood School in September, 1933, has had previous experience as a superintendent of schools.

• SUPT. JOHN F. SCULLY, of Brockton, Mass., has announced his retirement, to take effect at the end of the school year in June, 1937. Mr. JOHN L. MILLER, headmaster of the high school, has been elected superintendent, to succeed Mr. Scully.

• MR. D. M. HUMFLET has been elected superintendent of schools at Barboursville, Ky. He succeeds G. G. Nichols, who has resigned.

• SUPT. C. V. HAWORTH, of Kokomo, Ind., was recently elected president of the Northern Indiana City Superintendents' Club, following its meeting held in Portland.

• DR. H. AMBROSE PERRIN has announced his resignation as superintendent of schools at Joliet, Ill., effective at the close of the school year in June. Dr. Perrin went to Joliet from Jacksonville, where he had served as superintendent for seven years.

• DR. DAVID ROSS BOYD, a former superintendent of schools of Van Wert, Ohio, died in Pasadena, Calif., on November 17, following a heart attack.

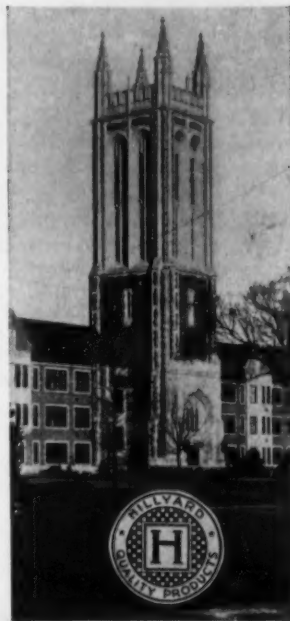
• SUPT. MERLE J. ABBETT, of Fort Wayne, Ind., has been re-elected for a three-year term, beginning with August 1, 1937. The contract calls for an increase of \$500 a year over his previous contract.

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SCHOOL LAW AS VIEWED BY THE COURTS

Compiled by Patrick J. Smith, Supreme Court Library, Indianapolis, Indiana

Board Members May Not Vote for Relatives

Ordinarily, it is the duty of a county board of education to elect a nominee recommended for a teaching position by the county superintendent. *Hall vs. Boyd County Board of Education*, 97 S. W. (2d) 38.

Hazel Hall applied for a position as teacher in Boyd County. The county superintendent recommended to the board that she be appointed. There was no question as to her moral or educational qualifications; however, she was a first cousin to a member of the board. By law the relative member was not entitled to vote on her application. When her petition was voted on, the relative did not vote and one other member voted against Miss Hall being hired. A statute of Kentucky provided in such cases of relatives of board members seeking positions, that the relative board member could not vote, and the applicant must have "the entire vote of the remainder of the board."

Miss Hall brought suit to compel her employment. "It is conceded that where a nominee possesses these qualifications and is recommended by the superintendent, it is ordinarily the duty of the board to elect him."

The purpose of the act forbidding board members voting for relatives was to stamp out nepotism in the schools. Miss Hall argued that the legislature meant that all but relatives should vote, and that so long as the applicant received a majority of the vote, she was entitled to the position regardless of whether a majority voted against her.

In rejecting Miss Hall's contention the court said, "The objection to this argument seems to us to rest in the word 'entire' as used in the act. It does not say that 'the vote of the remainder of the board shall be required.' It says that 'the

entire vote of the remainder of the board shall be required.' We have construed the word 'entire' to be synonymous with 'undivided.' With the plain purpose of the act in mind, it seems to us that the provision means that an applicant must secure the undivided, or unanimous, affirmative vote of the remainder of the board in the cases contemplated."

Discharging Tenure Teacher

There is no power in the Board of Regents of a normal school by which they may assign a tenure teacher to a certain position, the principal occupation of which is teaching, then by abolishing the position but continuing the work, effect the discharge of the teacher.

Frank M. Karnes was appointed in February, 1914, as a teacher and supervisor of student teaching in industrial education, in the Teacher's College of Oshkosh, Wisconsin. On September 1, 1918, he was promoted to the directorship of the department. Prior to this promotion, in 1917, Mr. Karnes had acquired the status of a permanent teacher in accordance with the statutes, and contained as such until June 16, 1934, when he received a letter from the president suggesting he resign since the best interests of the school would be served thereby. This Mr. Karnes refused to do and demanded a hearing before the board. Upon inquiry, Mr. Karnes was told there were no charges against him but that he had been discharged by a resolution of the board. The substance of the resolution purported to abolish the department and the position of director and one other position.

However, Mr. Karnes appeared ready for assignment of duty at the beginning of each semester. This petition in mandamus demanded, among other things, reinstatement.

Section 37.31 of the Wisconsin Statutes makes provision for the acquiring of a tenure status and defines the rights of the teacher as to discharge. The board contended that section 37.31 did not deprive them of the power to abolish positions, change the course of study, or make a

reduction in teaching personnel. "We have no doubt that the board had the authority to abolish the position of director of industrial education, but it does not follow that the board could discharge the plaintiff, whose principal occupation, it is asserted, was teaching, and who had at the time, by virtue of section 37.31, a permanent teacher status. If we should hold that the board may assign a permanent teacher to a certain named position in which his principal occupation is that of teaching, and then by subsequent action abolish the position, although continuing the work, and thereby effect his discharge, then indeed would section 37.31 be emasculated and permanent teachers in the system would hereafter have to be wary of the names and titles given to their respective teaching positions. In our view, the legislature, in enacting section 37.31 did not intend that any such result should happen." *State ex rel Karnes vs. Board of Regents of Normal Schools*, 269 N. W. 284.

SCHOOL-BOND SALES

During the month of November, school bonds in the amount of \$9,549,929 were sold. Pennsylvania sold \$1,154,500, and California sold \$2,089,000.

The average interest rate reached the unprecedented low point of 2.69 per cent.

During the month, refunding and short-term notes in the amount of \$1,532,185 were sold.

SCHOOL-BUILDING CONSTRUCTION

During the month of November, 1936, Dodge reports contracts let for 263 educational buildings, measuring 2,677,000 square feet, to cost \$13,148,800. Included in this compilation are 216 school and college buildings, involving 2,385,600 square feet of construction, at a cost of \$10,953,100.

During the month in states west of the Rockies, a total of 18 school-building projects were reported, to cost \$2,770,720. During the same month, 26 buildings were reported in preliminary stages, at an estimated cost of \$1,812,970.

CENTERVILLE'S NEW HIGH SCHOOL

(Concluded from page 61)

and visiting other schools is not an adequate means of getting this information. Many plates of school plans are not good plans; in fact, all but a few could be improved upon. A person not knowing the wheat from the chaff is likely to secure very little from such a practice. To corner the science teacher of the local school and quiz him on what he would like to have in the laboratory in the new school is a common practice. The teacher's ideas may produce a laboratory that would serve his fondest dream, but it will not necessarily be a good laboratory. It may contain or lack many facilities needed in a modern school. The next teacher to occupy this room may find it very unsatisfactory.

Experience in working with many people and on many schools and surveying them after they are completed to determine their efficiencies and deficiencies, is the only logical manner of developing knowledge, skill, and wisdom needed for planning school buildings. One has to live with schools to plan new ones with a degree of efficiency.

A few years ago, I built a cottage in the north woods, which seemed a simple problem. The errors I made in the plan of it were appalling and were appreciated only after I had occupied the cottage for a summer or two. I am again planning one—one that will have the sleeping rooms isolated from the kitchen, that will have space for an adequate woodpile accessible from the living-room fireplace, a garage connected with the house, and many other conveniences that were not included in my first attempt. To the uninitiated there would seem little choice between the two. They will be equally attractive from the exterior, and the added conveniences will not readily be discernible by the uninitiated.

A great many more problems confront one in planning a school building, and the errors are far more serious. The bad results are multiplied in seriousness by the years the school will be used and the untold inconvenience they cause. The boards of education feel that their superintendents should know the answers to all these problems. Some who have had wide experience, undoubtedly do. But, many excellent educators and administrators have had little opportunity for experience in this field. A course in school administration at some university where school planning is taught, will help the superintendent in planning his new building, but it will no more make him an architect or an expert in school planning than talking to the local school teachers will make the architect an educator.

Some Errors

It is beyond the province of this article to set down the many common errors made in unguided school planning. Perusal of plates and visits to other schools tend

to perpetuate these mistakes in building after building.

One example of poor planning stands out in my memory above all others. This schoolhouse was erected in a large city. It is a very beautiful building and the community is proud of it. The fact that this building cost the community a considerable sum more than was necessary is evidenced by another elementary-school building erected five years later in the same section of the city. The newer building accommodates the same number of pupils (1,300) and contains 404,000 cubic feet less than the first building. It has every educational facility that is included in the earlier building and is planned for enlargement.

The entire saving in the second building was made by efficient planning and the elimination of excessive cubage. The corridors are reduced in both length and width, and the stairways are so placed as to eliminate dead ends. The ceiling heights are reduced to 12 feet and the number of toilet fixtures has been reduced.

In one high school I know of, built to accommodate 2,600 pupils, so many toilet

fixtures were installed that a few years later when there were 4,000 pupils in the building, there was still no overcrowding of toilet facilities. In another school, the toilet rooms are so poorly located that two or three rooms carry the entire load. One girls' toilet room on the top floor, with 10 fixtures, was used a total of 27 times one day and 15 times on another day when checks were being made. Consider the original cost and the maintenance cost on this number of fixtures during the life of the building. It is difficult and costly to correct an error of this kind and in most cases it is never corrected.

Many millions of dollars are to be spent on schoolhouse construction this year. A good portion of it will be granted by the Federal Government.

There are many hundreds of thousands of school children improperly housed throughout the country. It is our duty and the duty of every board of education seeking a loan from the government or a bond issue from its taxpayers to provide as *many seats in sound buildings with their allotment as proper, intelligent planning will permit.*

A Ministry for School Children

Situations arise in communities in which the school authorities become confused as to the exact lines to be drawn between the school and the home on the care of the children. The tendency has been to go far beyond the old-time conceptions as to the function of the school in the direction of the physical welfare of a pupil constituency.

Not only have the school authorities throughout the country brought medical science to the service of the school child in correcting physical defects, but they have provided recreational and other facilities designed to promote mental and bodily health and well-being.

In carrying out a broad and beneficent policy, whereby all the needs of a school child are adequately fostered, the question has arisen as to what extent, when, and where the school authorities may call upon other public agencies for co-operation. In the larger communities, the functions of government have become highly departmentalized and specialized. Thus, the matter of health, recreational, and corrective agencies have separate entities which are in no wise under the jurisdiction of the school authorities.

This situation prompts Supt. Harold G. Campbell, of the New York City schools, to say:

"It is apparent that if the needs of the children are to be met it must be through the co-operative efforts of the department of education, the department of health, the department of hospitals, the park department, the police department, the department of welfare, the public libraries, the housing authorities, the planning commission, and other agencies.

"There is at the present time the finest kind of co-operation among these several departments, but the one thing that might do more good than anything else is entirely lacking, and that is an official interdepartmental agency for co-ordinat-

ing the budget requests of these departments with a view toward the formulation of an integrated program to fulfill the needs of the city's children."

Who Shall Control Health Work?

In some communities, the health work among children is in the hands of the school authorities; in others, it is not. The tendency, however, has been to place all health work under the control of a health department and permit the school authorities to manifest the needs of the children. But, the relations between the two public agencies have not in all instances been wholly clarified. Supt. Campbell here says:

"Consider the entire problem of health service in the schools. Where does the department of education's responsibility end and the department of health's begin? The line is not clearly drawn. Ought we in our budget to ask for more doctors, more clinical facilities, more money for health examinations, and for psychiatrists, or are we to call upon the board of health for these services? Certainly if we are going to call upon the board of health we ought to tell the health commissioner fully and specifically of our needs before he prepares his budget and then help him get that budget approved by the city.

"In the field of welfare work, who can say definitely which are the functions of the department of education and which are those of the department of welfare. Thousands of children need eyeglasses but have no means of getting them. It has been proposed that they be furnished by the city, but through whose budget—ours, the department of health's, or the department of welfare's? The question has never been settled, and the result is that the children have never got the eyeglasses.

"Shall our department ask more money for library facilities, or look to the public libraries? At present, as in the case of health services and recreational facilities, both departments ask, each without official knowledge of the other's request.

(Concluded on page 94)



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(Concluded from page 92)

and the requests are in competition. Are we to ask the city to provide more traffic policemen to protect children at street crossings, or hope the police commissioner will ask for them? Are we to tell the city that its housing program should be enlarged because children who live in dilapidated, unheated tenements are unlikely to do well in school and are quite likely to tend toward delinquency, or is this the task of the housing authorities?"

The suggested solution is to the effect that budgets should not be prepared in competition with one another, particularly where the objective of several departments is to fulfill the needs of the school child. Interdepartmental, prebudget conferences are deemed necessary. These, Superintendent Campbell maintains, will provide a complete and unconfused picture of all the needs of all the children.

SCHOOL-BOARD AUTHORITY OVER ASSEMBLY HALLS

An interesting case, involving the authority of the board of education on the use of a high-school auditorium, recently came up at Perth Amboy, N. J. An organization known as "The American League Against War and Fascism" applied for the use of the local high-school auditorium for a lecture to be delivered by Major General Smedley Butler, on the topic "War is a Racket."

The board of education denied the application, whereupon the association, in accordance with the law, appealed to the state commissioner of education. The petitioner contended that the action of the board (1) defeats the purpose of the state school law for the use of school buildings; (2) is capricious and an unreasonable exercise of discre-

tion of the board based on passion, bias, and prejudice; (3) violates the United States Constitution guaranteeing the right of peaceable assembly and free speech; (4) is in contravention of the decision of the commissioner of education in the case of *West New York Taxpayers and Rent Payers' Association vs. Board of Education of the Town of West New York*, decided January 30, 1934.

The members of the board testified that, while they have no objection to an address by Major General Butler, who on a previous occasion had spoken in one of the school buildings, it was their opinion that with the heterogeneous population of the city of Perth Amboy, which includes sectional groups immigrating in recent years from several European countries, any discussion under the auspices of the American League Against War and Fascism might, as a result of strong differences of opinion, lead to extreme disorder or violence, and that it was solely for these reasons that the use of the building was denied. It was noted that the petitioner was an unincorporated association and as such might not be held financially liable for damages to property or for disorder occurring in the building. In permitting the use of a school building, it was deemed advisable to require that petitions be made by responsible citizens or incorporated organizations which have reasonable financial standing.

The commissioner in his findings stated that "it is true that under Article I of the amendments to the United States Constitution, there is guaranteed freedom of speech and the right of people to peaceable assembly to petition the government for redress of grievances, but these rights are not issues in this case, since there is no indication that the board of education has attempted to prohibit the petitioners from assembling elsewhere in the city for the purpose of expressing their views in relation to the discussion of 'War is a Racket.' The board contends

that other available places in the city could be utilized for the purpose, and that its refusal of the building in no wise affects the petitioner's constitutional rights. There is no constitutional question involved in this case before the commissioner of education, but only the determination as to whether the board of education is required to permit the use of a school building for a public assembly when in its judgment such use may lead to a disturbance with possible damage to the building."

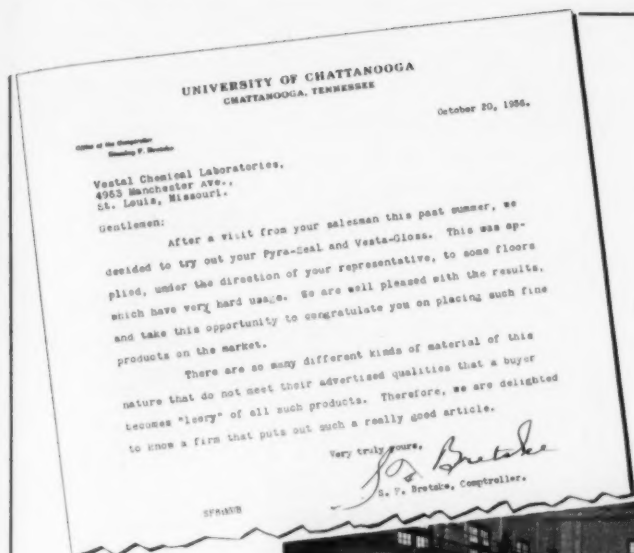
The Commissioner of Education, Charles H. Elliott, held that the Perth Amboy board of education had not gone beyond its authority and hence dismissed the case.

SCHOOLS OF NATION BENE- FIT UNDER FEDERAL WORKS PROGRAM

(Concluded from page 58)

cation were able to provide them under the Work Program. Projects for the erection of these facilities not only offered the children an opportunity to attend school for the first time, but also provided security wages for the parents of the children who had been on relief.

The latest available statistics from the Division of Research, Statistics, and Records of the WPA show that 82,430 persons were employed on WPA school projects. Their total earnings for an average semi-monthly pay period were \$2,460,530 and their average rate of pay was 55.3 cents an hour.

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New Books

Webster's Collegiate Dictionary (Fifth edition)

Cloth, 1,270 pages. Price (in buckram) \$4. Published by G. and C. Merriam Company, Springfield, Mass.

Here is an entirely new book, abridged from the second edition of the *Webster's New International Dictionary*, which has been characterized by its outstanding scholarship, accuracy, and completeness. The present *Webster's Collegiate Dictionary* constitutes the fifth edition but is issued with the assurance of the publishers that it is a revised and enlarged abridgment. This assurance carries with it the fact that much new material has been added.

The vocabulary dealing with the fields of science, industry, technology, and finance has in view of the advances made in recent years, been materially increased. This is due, it is explained, to the fact that there has been a tremendous growth and many changes. There have been new developments in literature and the arts, as well as new discoveries and new terms in the sciences. The vocabulary has been increased by 32 pages, and the number of illustrations by 1800.

The editors state that the newness of the present work represents not a break with the past but rather a continuity. It becomes evident that exhaustive thought and study have been devoted toward the abridgments, and effort at the same time to lose nothing in point of completeness and serviceability. From each successive revision of the unabridged work new abridged books have sprung.

In examining the work as a whole, it becomes evident that the editors within the scope of an abridged dictionary, have made it as inclusive as possible. The preface would indicate that a tremendous task has been performed in adapting the book to render a maximum service to its users.

The appendix is designed to be helpful in several directions. Here we find not only the customary abbreviations used in writing and printing, but also information on arbitrary signs and symbols, and a pronouncing gazetteer of 41 pages. There is also provided a pronouncing biographical dictionary of 21 pages. This is followed by a list of common English Christian names, as well as a list of foreign words and phrases. The colleges and universities of the United States and Canada are enumerated. There is also a chapter on punctuation, compounds, capitals, etc., and instructions for the preparation of copy for printing.

It may finally be said that so far as an abridged dictionary may go in point of scope and content, the present volume is an achievement that is well worthy of a whole-hearted acceptance by the American student and reader.

Practical Mathematics
By N. J. Lennes. Cloth, 394 pages. Price, \$1.20. The Macmillan Company, New York, Chicago.

This ninth-grade text frankly recognizes the fact that a majority of high-school students are not interested in formal mathematics but that they will respond to a type of mathematical work which is closely related to their everyday life and which reflects the types of mathematical problems met with in business, in home life, and in other contacts with the world. Part I of the book is a restudy of grade-school arithmetic, leading into a simple study of algebraic equations, percentage, and measuring. Part II of the book suggests a wide variety of practical problems, involving arithmetical computations, algebraic equations, and some simple plane geometry. Each of the chapters takes up some specific application of mathematics to an aspect of business, household, farm accounting, building construction, etc.

The final section of the book is intended to

present a practical overview of mathematics applied to major social problems. Current statistical material is covered in a chapter headed with the significant words, "The March of Progress." The exercises and discussions offer an opportunity for constructing graphs, figuring percentages, and making short numerical studies of actual statistical materials gathered from recent United States and state reports. The book should serve a very real purpose in high schools.

The Administration of Discipline in the High School

By E. H. Garinger. Cloth, 106 pages. Bureau of Publications, Teachers College, New York, N. Y.

This study of discipline seeks to afford solutions to eight specific problems in high-school discipline, and to bring out the attitudes of principals and teachers on these problems, as well as the routine practice followed in solving typical individual difficulties. The author finds that, generally speaking, discipline becomes an end in itself in the average high school, and that docility, obedience, and conformity are sought as objectives, while infractions of the rules of the school or of the moral code, are treated not as symptoms of maladjustment to be discovered and treated but as offenses to be punished. Newer concepts of disciplinary control which seek to penetrate below outward conformity and to enforce genuine inward acceptance of rules and moral principles are necessary, if discipline is to assist in preparing boys and girls for life. Punishment and retributions have no place in removing causes of disciplinary lapses; the degree of annoyance to the teacher is not a right basis of judgment.

The study while critical of existing practices, does not extend to a consideration of the broader problem of a moral and spiritual basis for the development of principles and practices that will cause a complete acceptance by the pupils of the school's rules and of a moral code. The author is quite right in holding that the high school



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Mogull Bros.,
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New York City

Alan B. Twyman,
29 Central Avenue,
Dayton, Ohio

Western Sound Service, Inc.,
Skinner Building,
Seattle, Wash.

accepts an exceedingly narrow responsibility for the moral behavior of the pupil, particularly outside of the school, and concerns itself largely with the immediate and outward conformity to rules. Perhaps, the only exception which the average principal makes in his interest in outside behavior relates to damage to property and public breaches of the peace reflecting directly upon the school. The high schools are in need of deeper motivation of discipline, greater moral responsibility on the part of principals and teachers, and a closer tieup of discipline with a fundamentally correct system of character training.

Stevenson's Treasure Island

Adapted by T. E. Donahue and Minna Ludeke. Cloth, 224 pages. Illustrated. Price, 68 cents. D. C. Heath Co., Boston, Mass.

This simplified and condensed edition of *Treasure Island* is intended for use as a supplementary reader in the intermediate grades, and also for children in the upper grades and junior high schools, whose reading ability is limited. The vocabulary, checked against the Thorndike list, and the sentence structure have been made to conform to the needs of the above-mentioned groups; at the same time all of the important events and characters of the original story have been retained. The comprehension tests, notes on elementary grammar, and the glossary afford the teacher ample instructional material.

PUBLICATIONS

California Test of Mental Maturity

Devised by Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs. Price, \$1.25 per package of 25 tests. Published by the Southern California School Book Depository, Los Angeles, Calif.

A diagnostic test of mental maturity, devised for use with pupils of the fourth, fifth, sixth, seventh, and eighth grades. It provides a series of four batteries of tests, for pre-primary (grades 1-3), elementary grades (grades 4-8), and advanced (grades seven to college sophomores). Each battery comprises sixteen individual tests. The first three offer a measure of visual acuity, auditorial acuity, and motor co-ordination; the remainder of each battery is divided into four principal factors,

comprising memory, spacial relationships, reasoning, and usable concepts and ideas.

Each battery consists of two groups of tests, one of which is primarily language, and the other nonlanguage. The specimen set includes the test, a specimen diagnostic profile chart, and a manual of directions for the teacher. **Reading and Writing.**

By Robert M. Gay. Cloth, 268 pages. Price, \$1.25. Little, Brown & Co., Boston, Mass.

"A method and a manual of compositional exercises to accompany the study of literature." Intended for college classes.

Disposition of School-Board Issues and Special Levies in Ohio School Districts Between January 1 and November 3, 1936

Compiled by T. C. Holy, of Ohio State University, Columbus, Ohio. Published by the Bureau of Educational Research, Ohio State University.

The booklet offers specific information in the number of bond issues submitted, the number carried, the amount of the issues, the amount carried, and the per cent of the total amount of bond issues carried.

Bibliographies and Summaries in Education to July, 1935

By Walter S. Monroe and Louis Shores. Issued by the H. W. Wilson Company, New York, N. Y.

A catalog of more than 4,000 annotated bibliographies and summaries listed under author and subject in one alphabet. The compilers have endeavored to make the list complete for the period from January 1, 1910 to July 1, 1935. A selection of bibliographies published before 1910, has been included.

Dean and Don at the Dairy

By Jane Miller. Cloth, 88 pages. Price, 64 cents. Houghton Mifflin Company, Boston, Mass.

The third of a series of "Community Life Readers." Dean and Don visit a dairy farm and become milkmen for a day. Vocabulary, information, activities, and interests are all adapted to children seven and eight years of age.

Schemata for the Analysis of Drill in Fractions

By G. M. Ruch, F. B. Knight, E. A. Olander, and G. E. Russell. Paper, 58 pages. Bulletin No. 2, 1936. University of Iowa, Iowa City.

Fractions own their full share of fascinating problems in the psychology and pedagogy of teaching and learning. Many of these problems have not been studied as extensively or skillfully as other problems in the management of the four processes using whole numbers.

This monograph reports the actual drill material contained in several textbooks now in use. By using the

schemata of the monograph, a better balanced and better integrated instruction and practice will be facilitated. Its use in drill construction provides added security to the adequacy of the mental experience of the pupil who works through a textbook or other drill device based upon such analysis.

General Analysis and General Appraisal Outlines for Textbooks

By J. A. Clement. Paper, 18 pages. Published by the Author, at Urbana, Ill.

These outlines planned for the study of textbook materials of instruction for junior and senior high schools embrace the common items in analyzing and appraising textbooks. They will enable school officials to be cognizant of similar aspects, and to unify the thinking and practices of classroom instructors. Another purpose of the series is to assist in the more intelligent adoption of textbooks no matter what may be the plan employed by persons given this authority. The items suggested in the outlines represent the minimum of reactions made in examining and judging textbooks. The use of these outlines will make definite and systematic the procedure used in examining, judging, and adopting textbooks.

Modern Life Spellers

By Fred C. Ayer, E. E. Oberholtzer, and Clifford Woody. Book I, cloth, 128 pages, price 48 cents; Book II, cloth, 106 pages, price 48 cents; Book III, cloth, 106 pages, price 48 cents. World Book Co., Yonkers, N. Y.

This three-book series is based on a study-test of child life. The latest vocabulary research has been used in the development of the vocabulary lists. Correlations are set up with the social-science studies and other subjects taught in the grades. The books are characterized by a strong modification of pupils' interests and self-activity. Exceptionally strong materials for testing and reteaching are provided.

Progressive Solid Geometry

By Walter W. Hart. Cloth, 592 pages. Price, \$1.36. D. C. Heath & Company, Boston, Mass.

A text offering a series of new-type intuitive exercises in geometry, providing the experimental background needed by pupils in their approach to more advanced work. It offers a number of practical exercises, together with timely illustrations which increase the general attractiveness of the book. There are opportunities for reviews of the processes in arithmetic, algebra, and trigonometry, and a section is given over to the formulation of definitions and theorems in geometry. The tests, which appear at the back of the book, are so placed to avoid attracting the attention of the pupils.

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School Business Administration

COAL FUEL STANDARDS

The Committee on the Classification of Coal, of the American Standards Association, has recently completed reports on the standard classification of coals used for fuel purposes. One of these reports classifies coals by rank and the other by grade. The committee has adopted three lines of classification for coal.

1. By rank, or according to the degree of metamorphism or progressive alteration in the natural geological processes. The simplest or most elementary type of coal by rank is lignite, and the most advanced is anthracite.

2. By grade, or according to the nature and amount of the impurities of the coal, the size of the lumps, etc.

3. By type, or varieties. These varieties are conditioned particularly by the ingredient vegetable materials resulting in coals, such as the common bright coal, the algal, the splint, the cannel, the boghead coal.

The committee has divided the coals available in the United States into thirteen different groups which can be definitely determined by simple chemical and physical tests. This grouping will be used by governmental and commercial organizations and is expected to provide the basis for both scientific and practical work.

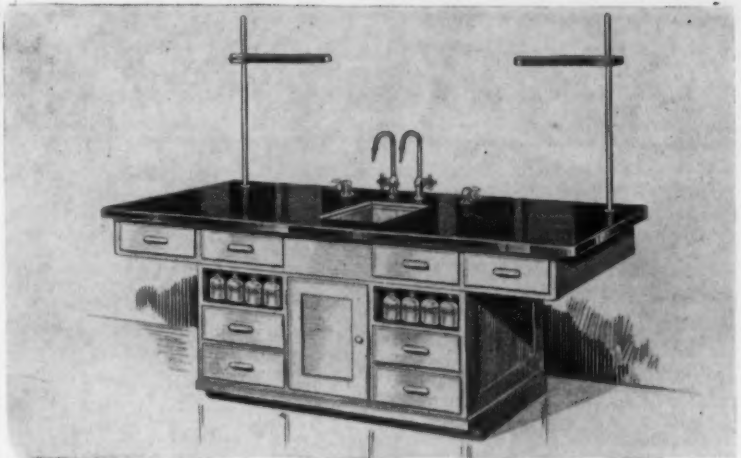
The reports of the committee are available from The American Standards Association, 29 West 39th St., New York City, at 25 cents each. The present bulletins are entitled (Classification of Coals by Rank M20.1-1936, A.S.T.M. D388-36T, and by Grade M20.2-1936, A.S.T.M. D389-34T).

Charts are also available entitled "Classifica-

tion Charts of Typical Coals of the United States, Bureau of Mines Report of Investigations No. 3296." The charts are obtainable without cost from the United States Bureau of Mines, Washington, D. C.

♦ Cincinnati, Ohio. The board of education has voted to cut the school year by fifteen days in June, and an additional twenty days next fall, as a means of bringing the school expenses within the available income. It was brought out that the teachers face an additional 7.69 per cent salary cut, following the curtailment of the year. During the holiday period, they suffered a loss of salary due to the lack of funds to pay salaries.

♦ River Rouge, Mich. The school board recently refunded \$750,000 in maturing bonds, with interest at 5½ and 6 per cent, for callable bonds bearing 3¼ per cent interest.



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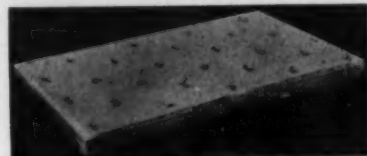
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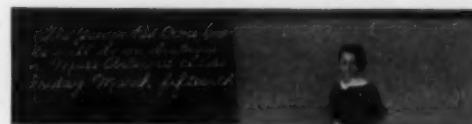
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Teachers' Salaries

RESTORE SALARIES

The board of education of Portsmouth, Ohio, has since 1934 restored one of the two salary cuts suffered by members of the teaching staff. Beginning with September, 1936, the board has restored one half of the accumulated increment lost since the depression period. Some of the teachers had an accumulated increment of \$90 a month. At one time the school year of nine and one-half months was reduced to eight months due to economy reasons. At the present time the schools are being operated on a full nine months' term.

NEW PORT CLINTON SALARY SCHEDULE

The board of education of Port Clinton, Ohio, has adopted a new salary schedule for teachers and for elementary- and high-school principals. The schedule is based on training, experience, and efficiency, and all increases are figured on a twelve-month basis.

Under the schedule, teachers with no experience but with 2 years' training, will begin at a minimum of \$810, and will advance at the rate of \$50 to a minimum of \$1,550. Teachers with one year's experience but with 2 years' training, will begin at \$840, and advance to \$1,590. Teachers with 2 years' experience but with 2 years' training, will begin at \$870, and advance to \$1,630. Teachers with 3 years' experience but with 2 years' training, will begin at \$900, and advance to \$1,670. Teachers with 4 to 5 years'

experience but with 2 years' training, will begin at \$930, and advance to \$1,710. Teachers with 6 to 8 years' experience but with 2 years' training, will begin at \$960, and advance to \$1,750. Teachers with 9 to 12 years' experience but with 2 years' training, will begin at \$960, and advance to \$1,790. Teachers with 13 to 15 years' experience but with 2 years' training, will begin at \$960, and advance to \$1,830. Teachers with 16 to 20 years' experience and 2 years' training, will begin at \$960, and advance to \$1,870. Teachers with 21 to 25 years' experience and 2 years' training, will begin at \$960, and advance to \$1,910. Teachers with 26 to 30 years' experience and 2 years' training will begin at \$960, and advance to \$1,930. Teachers with 31 years or more experience and 2 years' training will begin at \$960, and advance to \$1,910.

Elementary-school principals with schools of from 100 to 250 enrollment will be given increases of \$5 a month; those with from 250 to 350 enrollment will be given increases of \$9 a month; and those with 350 or more enrollment will be given increases of \$11 a month.

High-school principals will be given increases of \$300 the first year, \$350 the second year, \$400 the third year, \$450 the fourth and fifth years, and \$500 the sixth year.

Assistant principals will be given increases of \$11 a month.

High-school men teachers will be given \$100 additional per year.

Under the regulations, no salary is to be reduced, but no increase will be given until it has been earned by the teacher. Elementary teachers with 2 years' training, or high-school teachers with 4 years' training, will be required to complete credits toward a degree before they may move upward in the salary schedule. Elementary teachers may not receive credit on the schedule above four years except by special action of the board.

Under the schedule, no allowance in salary will be made for work toward an advance credit other than residence. Commercial teachers must get similar credit for business training in school or in the particular field. Thirty hours of professional training obtained in a recognized institution is accepted as a year's credit. An official transcript of credits in addition to the degree must be presented by the teacher in order to receive credit on the salary schedule.

The board reserves the right to pay above the schedule where the position involves outside work and responsibility, or where the welfare of the school justifies a higher salary. The board also reserves the right to refuse compensation where the advance training shows no direct benefit to the teacher in the field of service in which she is engaged.

Teachers' Salaries

♦ Indianapolis, Ind. The board of education has taken steps to carry out a \$275,000 partial-pay restoration for teachers during the present school year. The restoration has been provided for in a budget appropriation.

♦ East Orange, N. J. The salary cuts of teachers and school employees were eliminated, beginning with January 1. The deductions amounted to 2½ per cent on salaries from \$1,199 through \$1,999 and 7½ per cent on salaries over that amount.

♦ Philadelphia, Pa. The school board has voted salary restorations for more than half of the teaching staff during the year 1937. The action of the board was taken in connection with the setting of the next year's school tax at 92.5 cents. It is expected that the elementary teachers will largely benefit from the increase, which will add \$477,521 to the school budget.

♦ McPherson, Kans. The school board has approved plans for a high-school building.

♦ Albuquerque, N. Mex. The contract has been let for the construction of the high-school gymnasium, to cost \$203,000.

CINCINNATI'S SCHOOL-FINANCE PROBLEM

The budget for 1937 fixed by the Cincinnati board of education calls for \$7,148,000, while the funds available amount to \$5,999,000. Consequently, there is a shortage of \$1,149,000 due to the failure of the 1.39 mill tax to secure the approval of the voters at the autumn election.

F. W. Willey, a member of the board of education, in a recent study and report, suggests two avenues of procedure. One is to resubmit the special levy to the taxpayers, and the other to make the necessary cuts in the budget. With a credited balance of \$317,000, the actual budget shortage is reduced by that amount, but a drastic cut must nevertheless be engaged in.

The report here holds that "in the event that this board determines not to submit a levy of a special election, \$1,149,000 must be cut from the 1937 budget, and I will then concur in the suggested savings in other-than-personnel items totalling \$173,975, leaving the amount of \$975,025 to be deducted from administrative, civil service, and teacher salaries, now being paid to approximately 2,800 persons, a cut of 16 per cent in addition to the present lateral cut of 13 per cent. Without this additional cut, the average salary figures \$2,194 per person. The 13 per cent scheduled cut represents \$917,560; the 16 per cent additional cut represents \$975,025, making a total of \$1,892,585, or an average of \$676 per person."

Mr. Willey points out that a salary revision will take considerable time to adjust, that a discontinuance of the single-salary schedule will make but a small saving, and that the discharge of the 339 married teachers and their replacement by young teachers is not practical. He reduces the issue to two alternatives, namely a further lateral cut of 16 per cent on salary schedules, or a shortening of the school year.

His final conclusion is that the choice lies, first, in a submission of a special levy of 1.39 mills at a special election; second, accommodation to the income of \$5,999,000 by eliminating 35 days from the 1937 calendar-year schedule, and recommends the first choice.

COMING CONVENTIONS

February 1-3. Minnesota State School-Board Association, in St. Paul. Mr. John Palmer, Fergus Falls, secretary.

February 2. Association of School-Board Secretaries of Pennsylvania, in Harrisburg. Miss Mary E. Robbins, Sunbury, secretary.

February 4-6. Oklahoma Teachers' Association, in Tulsa. Mr. C. M. Howell, Oklahoma City, secretary.

February 5-6. Indiana City and Town Superintendents' Association, in Indianapolis. Mr. Z. M. Smith, Greenfield, secretary.

February 9-10. Nebraska Association of School Boards and School Executives, in Lincoln. Mr. E. J. Overing, Red Cloud, secretary.

February 11-13. Washington State School Directors' Association, in Spokane. Mr. L. D. Burrus, Olympia, secretary.

February 15-18. National School Supplies and Equipment Association, in Chicago, Ill. Mr. J. W. McClinton, Chicago, secretary.

February 18-21. National Association of Secondary-School Principals, in New Orleans, La. Mr. C. V. Church, Chicago, Ill., secretary.

February 17-20. National Association of Deans of Women, in New Orleans, La. Miss Gladys W. Jones, Washington, D. C., secretary.

February 18-20. International Council for Exceptional Children, in Cincinnati, Ohio. Dr. L. W. Keeler, University of Michigan, Ann Arbor, secretary.

February 19-20. American Association of Junior Colleges, in Dallas, Tex. Mr. D. S. Campbell, Peabody College, Nashville, Tenn., secretary.

February 20-25. American Educational Research Association, in New Orleans, La. Mr. William G. Carr, Washington, D. C., secretary.

February 20-23. Department of Superintendence, in New Orleans, La. Mr. S. D. Shankland, Washington, D. C., secretary.

February 24. National Advisory Council on School-Building Problems, in New Orleans, La. Miss Alice Barrows, Washington, D. C., secretary.

March 17-19. Public-School Business Officials of California, in San Francisco. Mr. A. P. Mattier, Compton, secretary.

March 18-19. South Carolina Education Association, in Columbia. Mr. J. P. Coates, Columbia, secretary.

March 25-27. Tennessee State Teachers' Association, in Nashville. Mr. W. A. Bass, Nashville, secretary.

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After The Meeting

A Pleasant Time Was Had

A Massachusetts newspaper reporter puts it this way: "The school committee was in rare form Monday night, and with all members present, staged one of those rip-roaring, name-calling, political-knifing sessions for which it is famous. The members were 'on each other's neck' from the minute the gavel fell until adjournment was voted."

Inherited Trait

Teacher: Yes, sir . . . your daughter is a good worker but she talks too much.

Father: You should come and see us some time to meet her mother.

Practicing

Socialist Father: What do you mean by playing truant; what makes you stay away from school?

Son: Class hatred, father. — Annapolis Log.

What He Wanted

Teacher: Would you not want to become president?

Pupil: No, sir.

Teacher: But, why not?

Pupil: There's no chance for promotion.

From Experience

Sunday-school teacher: Who is it that knows and sees everything — knows our every action — and watches over our comings and goings?

Little Effie: I know, Miss; it's the janitress!

The 6th Sense

Teacher: How many senses are there?

Student: Six.

Teacher: Indeed. I have only five.

Student: Yes'm the other one is common sense.

STORIES FOR SCHOOL SPEAKERS

To Be Identified

Colonel Sam Hughes, minister of militia for the Dominion of Canada during the world war, speaking at a political meeting, was greeted with hisses and groans.

The Colonel, always ready for an emergency, stopped in the middle of a sentence until the hall was silent. Then he said mildly: "In nature three things hiss: a snake, a goose, and a fool. Will the hisser come forward and be identified?"

His Reason

A group of school-business managers, during the recent convention of the National Association at St. Louis, visited a great manufacturing establishment. In the course of the conducted trip of the party wandered off into a dangerous corner of the great shop.

"Hey you," said the guide. "Keep close to me, or you'll get hurt."

"What do you care?" asked the schoolman. "I'm risking my own life. So what's the difference to you?"

"You do what I tell you," snapped the guide. "I don't care about your life; but I do care about my job."

Too Much

Colonel Boodle had prepared an oration to be given at the commencement exercises. He took his bosom friend, Colonel Tarwater, into his confidence and said to him: "I want you to be present when I deliver this speech. You must start the laughter and applause. Every time I take a drink of water you are to applaud and every time I wipe my forehead you are to laugh."

"Better switch signals, Kunnel," said his friend. "It's sure to start me off laughing if I see you up there taking a drink of water." — Louisville Courier-Journal.

School Buyers' News

TRADE NEWS

Concrete in Schools. The Portland Cement Association, 33 West Grand Ave., Chicago, Ill., has issued a 35-page booklet, describing the planning and designing of school buildings in concrete.

The booklet has been prepared to give useful information regarding the construction of small or medium-sized buildings in concrete. The use of concrete has been stressed because it represents the best in the design of educational plants with a maximum of flexibility and the utmost of durability in construction. These two features will, in the highest degree, contribute to long-term economy in schoolhouse construction.

The booklet includes typical floor plans and illustrations of school buildings, in addition to descriptive matter. A copy of the booklet is available upon request.

Issue Service Folder. The Maple Flooring Manufacturers' Association, McCormick Building, Chicago, Ill., have issued a useful service folder, illustrating and explaining the grading and finishing of maple flooring. First-grade maple flooring, it is explained, is sold in standard lengths from 2 to 16 ft.; short lengths from 2 to 3½ ft. are permissible up to 2½ per cent of the stock; second-grade maple flooring and third-grade are also explained. Two special types of colored finishes possible on each of the grades are illustrated.

Tucker Issues Catalog. The Tucker Duck and Rubber Company, Fort Smith, Ark., has issued the 1937 illustrated catalog of "peerless folding furniture." Included are all-wood folding chairs, Tuckerways, folding sections for auditorium seating, etc.

TRADE PRODUCTS

Announce New Metallock Inkwell for Schools. The Henry S. Wolkins Company, 716 Columbus Ave., Boston, Mass., has announced the manufacture of a new "metallock" all-metal inkwell which locks into the schoolroom desk.

The new all-metal inkwell, which has been designed by the engineers of the Wolkins Company, is intended to meet criticisms and defects in previous types of inkwells. Among the advantages



The New Metallock Inkwell

claimed for this new inkwell are its snug fit in the standard-size inkwell, the inability of pupils to remove covers, the ease with which the well can be filled, and the fact that it is flush with the desk top, making it easy to dust the desk without disturbance.

The "metallock" inkwell is practical, suitable for school requirements, durable, and economical. It is easy to install. It is merely set in the hole, fastened with an ordinary prick punch, and locked with the key.

Complete information will be sent to any school official upon request.

Announce All-Steel Desk-High Cabinet. The All-Steel-Equip Company, Inc., of Aurora, Ill., manufacturers of steel office furniture, have announced a new model, desk-high storage cabinet, which represents numerous improvements in design and construction over previous models.

The all-steel desk-high cabinet is constructed of stretcher-leveled furniture steel, electrically welded throughout, which gives a fine appear-

ance, free from bolt heads or similar detractors. Additional top service is afforded through a top which overhangs ½ in. on all sides. Two shelves, adjustable on 1½ in. center, offer ample storage space for office supplies. Smoothness of appearance is insured through the use of the well-known A-S-E "torpedo-type" hinge, a patented construction now used on the new All-Steel-Equip "popular" line of steel cabinets. Smooth embosses in the door itself form part of the hinge, which eliminates the possibility of sag. The embosses cover the ends of the hinge-pins, so that the door is practically "jimmyproof." The legs are constructed of heavy steel and are formed to give



All-Steel Desk Cabinet

added strength. Replaceable feet are screwed into the bottom of the legs for taking the shock when the cabinet is moved. A steel pocket on the inside of the door affords a place for papers, booklets, catalogs, and directories.

The new all-steel-equip cabinet is an ideal auxiliary storage unit for use beside the office desk. Complete information will be sent to any school official upon request.

New Palmolive Dispenser. The Colgate-Palmolive-Peet Company, of Jersey City, N. J., has announced a new soap dispenser, which holds the Palmolive soap in a new special form. The dispenser which is claimed to be the latest and most useful yet produced, is built of sturdy, chromium-plated bronze, with a transparent, heavy glass reservoir, which measures out just the right amount of soap for one wash. This dispenser never cakes, clogs, or corrodes, neither can it be drained. It may be installed in any type of washroom in a few minutes. Tests conducted in various buildings show that the dispenser saves as much as 40 per cent in washroom soap costs, due to the unique method of measuring out the soap.

Complete information will be sent to any school official upon request.

LEGEND OF THE CLOCK DIAL

An interesting story about the Roman Numeral IIII as it appears on clock dials has been received from the Standard Electric Time Company, of Springfield, Mass., manufacturers of electric program clock and signal systems for schools, hospitals, and public institutions.

The legend handed down by watchmakers is that the first clock which in any way resembled those now in use, was made by Henry Vick, in 1370, for Charles V of France. Charles had a reputation for wisdom and thought it necessary that he should appear to possess book learning. Thus, when Vick, the watchmaker, presented the new clock, King Charles found fault and said the figure IV on the dial was wrong.

"Where'n, your majesty?" said Vick.

"That four should be four ones," said the king.

"You are wrong, your majesty," said Vick.

"I am never wrong!" thundered the king. "Take it away and correct the mistake!" And corrected it was, and from that day to this, four o'clock on a watch or clock dial has been IIII instead of IV. The tradition has been faithfully followed.

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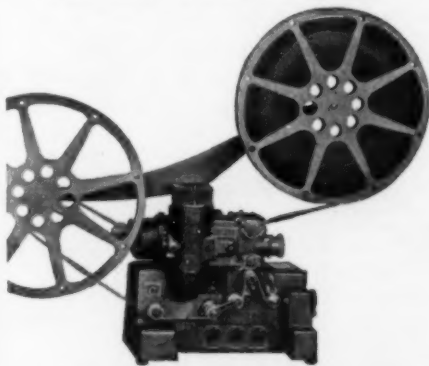
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MONTANA SCHOOL BOARDS MEET IN BILLINGS

An interchange of ideas affecting the treatment of various problems confronting the school systems of Montana was made possible at the eleventh annual meeting of the association, held in Billings on December 11 and 12. The sessions covered two days and were attended by 160 members of the association.

Prominent educators of the state participated in the program at the various sessions, chief of which was that of the school boards.

Besides reports of the state officers, the first day's program included talks by Pres. R. L. Arnold of Missoula; C. G. Manning of Lewistown; A. T. Peterson of Billings; and Mr. H. S. Borcharding of Moore. Superintendent Peterson declared the present retirement law is inadequate and suggested a change that will bring greater satisfaction to the faculty of schools. Mayor Arnold, of Missoula, president of the association, described the public school as a definite agency of the government, and advocated the repeal of the law requiring the 51 per cent of the qualified electors to approve bond issues for school purposes. He also advocated a more equitable distribution of state revenues so that the schools may get a portion. He pointed out that if the state gave more aid to the schools, the local districts would have less worry about their finances.

The final session of the convention on Saturday was opened with a talk by Mr. Glen Eye, of Miles City, on the subject, "Functions of State Textbook Commission." The Association discussed the proposed bill for enlarging school districts, presented by Mr. C. G. Manning, superintendent of schools at Lewistown.

The new officers of the association are: President, R. L. Arnold, Missoula; first vice-president, V. F. Gibson, Great Falls; second vice-president, A. E. Dye, Roundup; third vice-president, A. J. Malone, St. Regis; secretary and treasurer, E. L. Marvin, Billings.

OFFICE OF EDUCATION OCCUPIES NEW HOME

The Federal Office of Education is occupying its new headquarters in the new Interior Building. Space on the first, second, and third floors of the building has been provided for the personnel of the Office of Education.

The first floor of the building contains space for the library, the publications section, the files, the messenger service, the mail room, and storerooms.

On the second floor are the editorial division, the comparative education division, the vocational agriculture division, the CCC education, vocational rehabilitation, home-economics service, and trade and industrial education service.

The offices of Commissioner of Education John W. Studebaker, Miss Bess Goodykoontz, assistant commissioner, and J. C. Wright, assistant commissioner for vocational education, are on the third floor.

PASSING OF DR. JOHN P. GARBER

Dr. John P. Garber, a former superintendent of schools of Philadelphia, Pa., during the period from 1915 to 1920, died at his home on December 16. He was 77 years old.

Dr. Garber, who was a native of Pennsylvania, was a graduate of the Cumberland Valley Normal School in the Keystone State. He began his career as a teacher in Leipsville, Pa. In 1885, he became principal of the Kenderton School, in Philadelphia, and from 1897 to 1906 he was an assistant superintendent. In 1906 he was elected an associate superintendent. In 1915, Dr. Garber was elected superintendent of the school system, to succeed the late William C. Jacobs.

Dr. Garber was the author of several books on pedagogical topics. He was responsible for the first manual on "The School Janitor," published in 1922.

NEWS OF OFFICIALS

• Mr. V. V. SORESENSEN has been elected secretary of the board of education at Clinton, Iowa. He succeeds the late Theodor Carstensen.

• Mr. DAVID THORNE, of Carbon Hill, Ohio, has been elected president of the Hocking County board of education, to serve for the remainder of the year. Mr. Thorne succeeds the late Dr. H. T. Foster.

• Mr. GEORGE S. GETZ, a member of the school board of Kent, Ohio, for a number of years, died suddenly at his home on November 26, following a heart attack. Mr. Getz served two terms on the board of education and took a keen interest in all community affairs.

• Mr. C. D. HEDBERG is secretary of the school board in Cedar Rapids, Iowa.

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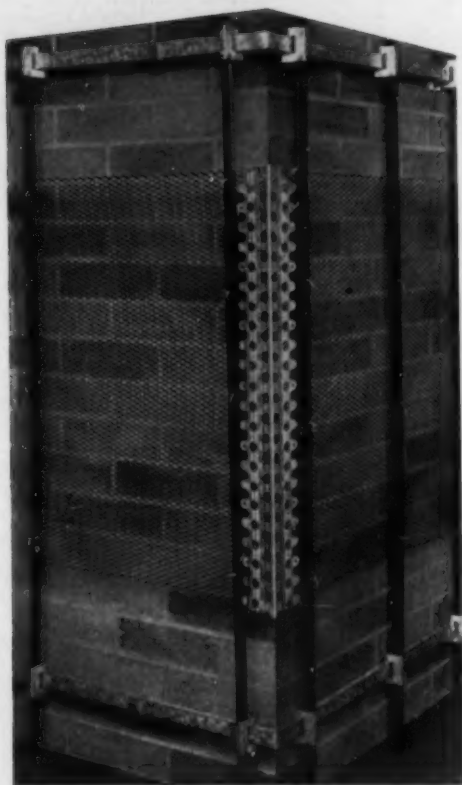
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